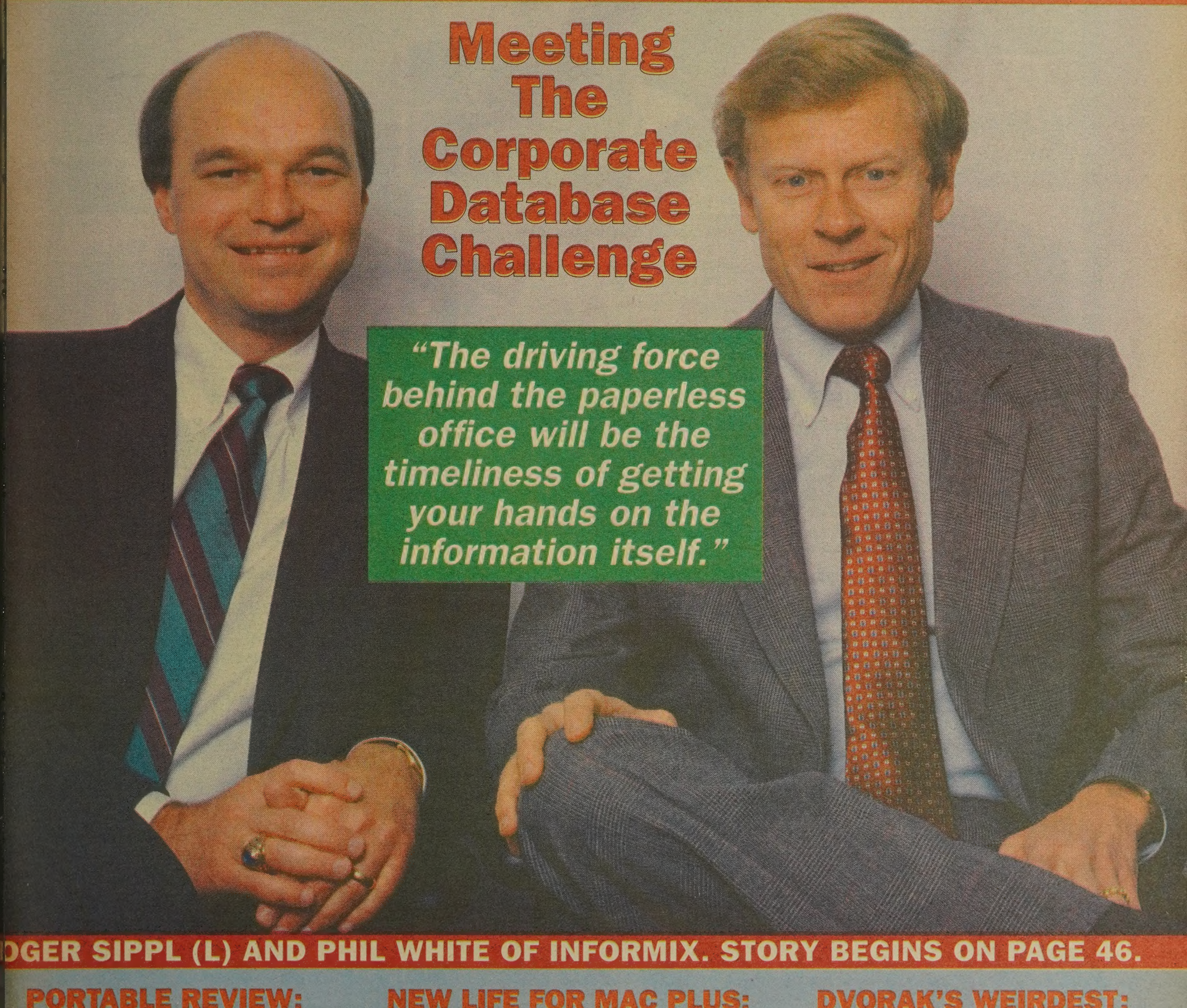
Bay Area's Computer Magazine
February 19, 1990 • 66
FREE

MICROTIMES™

INFORMIX AT AGE 10:

Meeting The Corporate Database Challenge



"The driving force behind the paperless office will be the timeliness of getting your hands on the information itself."

OGER SIPPL (L) AND PHIL WHITE OF INFORMIX. STORY BEGINS ON PAGE 46.

PORTABLE REVIEW:
The Sharp 5541 is no longer the nly machine to offer a hard disk and quality display as standard atures, but after working with it I still give it high marks."
PAGE 90

NEW LIFE FOR MAC PLUS:
"Instead of trading in your Plus on a new machine, you can add an accelerator board to maximize its performance, in some cases beyond that of an SE/30."
PAGE 130

DVORAK'S WEIRDEST:
"It was suggested that I change my style. I should write these columns with the idea in mind that I should option them as screenplays."
PAGE 194

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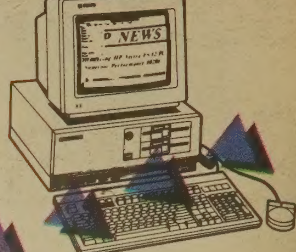

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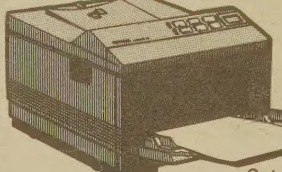

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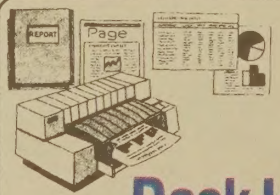

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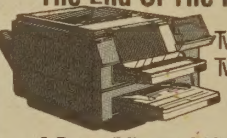

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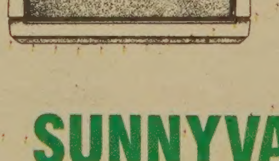

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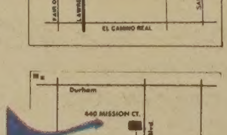

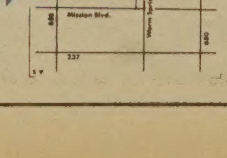

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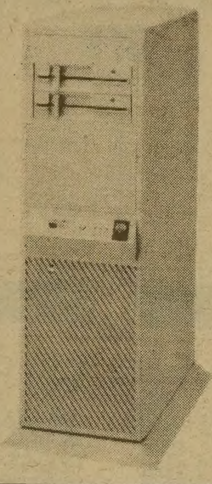

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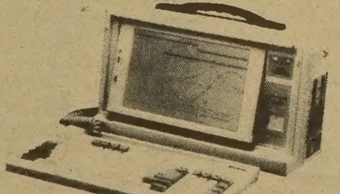

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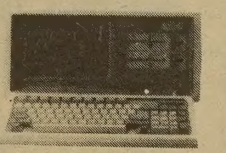

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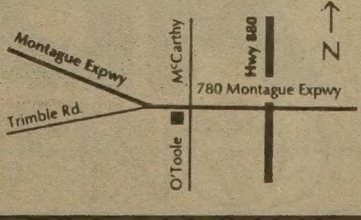

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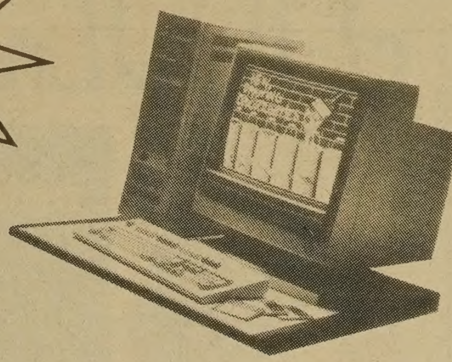

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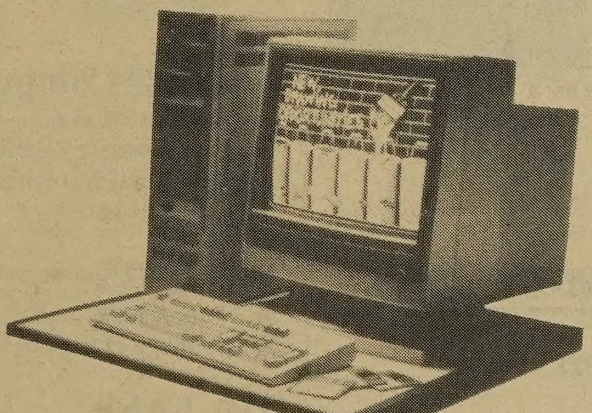

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MICROTIMES

Roger Sippl (l) and Phil White of Informix prepare for a new information revolution.

COVER STORY

46

Informix At 10:

Meeting The Corporate Database Challenge

By Mary Eisenhart
Cover and Contents Photos: Michael Jay
Rebounding from a bad 1988 caused by product delays and other difficulties, UNIX database pioneer Informix came roaring back in 1989 with record sales and new-generation technology. New CEO Phillip White and founder/chairman Roger Sippl talk about the changing information management needs of corporations in the 1990s, and how Informix plans to meet them.

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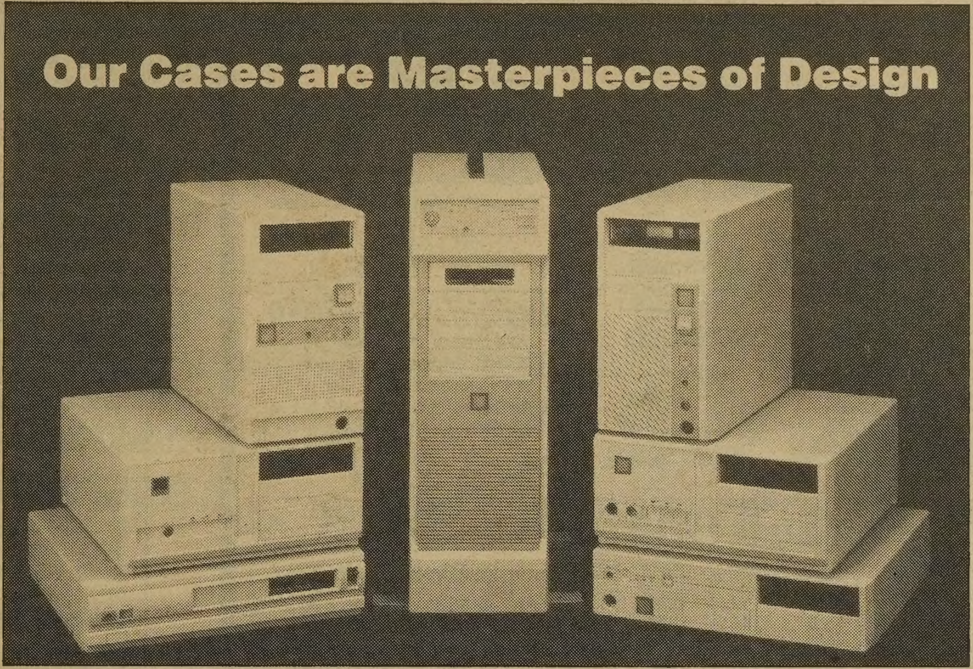
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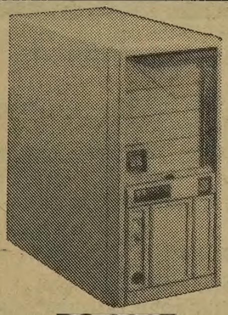
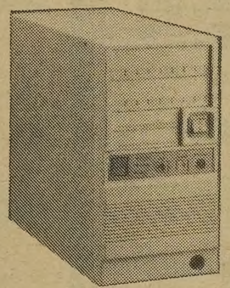


PC-901T

- Medium tower case for Baby AT, Big AT or XT compatible
- For three 5¼″ FDD, two 3½″ FDD & one 3½″ HDD
- 4 LED indicators and Turbo switch
- Patent Reset switch to prevent data loss
- With MHz display range to 99 MHz
- 1.44 mm metal sheet
- Dimensions: 7⅞″x16″x15¾″
- 1 pc/carton/4.5 cu ft
- N.W.: 10 kgs, G.W.: 12 kgs



PC-601T

- Mini-tower case for Baby AT or XT compatible
- For two 3½″ FDD, two 5¼″ FDD & one 3½″ HDD
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- Patent Reset switch to prevent data loss
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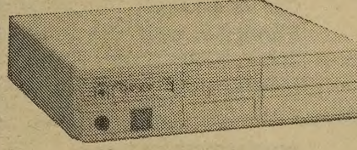

PC-303

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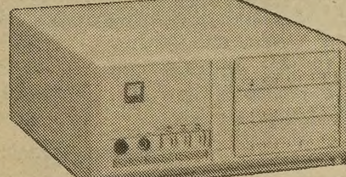

PC-103

- Slide-in case for Baby AT, Big AT or XT compatible
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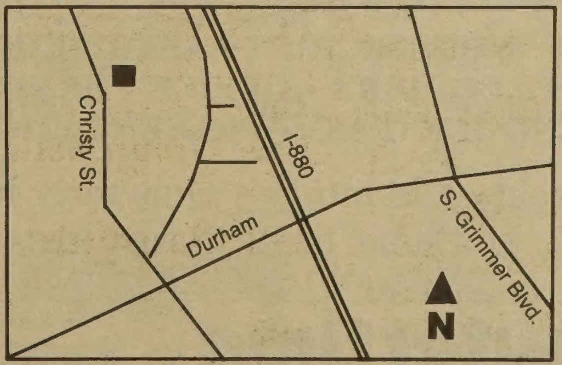

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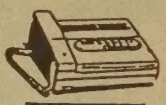
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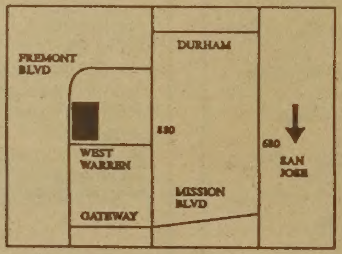

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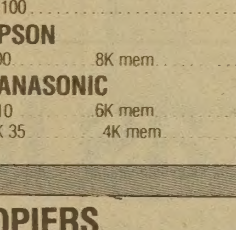

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LETTERS

Historical Revision: Giving Credit Where It's Due

In Mary Eisenhart's article in the January 22 issue of *MicroTimes* she states: "The microprocessor was the brainchild of Intel engineer Ted Hoff, who was assigned the project of designing a set of 12 custom chips for Busicom..." Also that Hoff "developed a single-chip, general purpose logic device."

It was Federico Faggin, not Ted Hoff, who designed and developed the 4000. He accomplished this feat in nine months of relentlessly hard work. As Bob Noyce said in a *National Geographic* article (see "The Chip" in the October 1982 issue), "Now it's a team effort. In 1970 Federico Faggin designed the 4004 microprocessor chip by himself in nine months; our 32-bit microprocessor took 100 man-years!"

Ted Hoff did not participate either directly or indirectly in the design of the chip. He does deserve credit for having proposed a programmable solution to the Japanese calculator manufacturer for having worked out—with the customer—an architecture capable of solving Busicom's problem. This was not an innovation but a basic computer architecture that had been around for about 20 years.

The idea of integrating a computer on a chip, too, had been anticipated and proposed by many people before Hoff.

The critical task that had not been successfully accomplished before was the design of a microprocessor chip that worked, and was manufacturable. That job, requiring several design innovations, was done by Federico Faggin.

I should also point out that Faggin, while at Fairchild in 1968, had architected and developed the very technology that made the microprocessor possible: the Silicon Gate Technology that Intel copied from Fairchild.

Federico Faggin was the man in charge of all the microprocessor development at Intel from the start—in 1970—until the end of 1974, when he left Intel to found a rival microprocessor company, Zilog. His departure to found Zilog, whose Z80 became extremely successful, explains why it has not suited Intel to give him credit for his contributions there.

Elvia Faggin
Los Altos Hills

Intel responds: *We stand by our position that Ted Hoff is the inventor of the microprocessor. It was his idea, he promoted the concept, gained approval for the project with Intel, and managed the team responsible for the final outcome—a four-chip set which included the 4004 microprocessor. The team was made up of Ted, Federico Faggin, Stan Mazor and Masatoshi Shima (who originally represented Busicom, a Japanese calculator company, but later joined Intel). Each member of this team spent many long hours, and each contributed significant "breakthroughs" to develop the first microprocessor. However, Ted is the inventor.*

—Howard High,
Strategic Communications Manager, Intel Corporation

Another Side Of Perstor

I find that I must take exception to Woody Liswood's glowing article on the Perstor hard disk controller which appeared in the November 27, 1989 *MicroTimes* issue.

I am a professional computer consultant and a software developer with a product that is used by more than one thousand CPA firms throughout the country. My current microcomputer is a 24 MHz 386 system with zero wait states. The hard disk is a Micropolis 1335 71 megabyte disk with an MFM 1:1 controller. In other words, I am an expert user with a high performance system.

After reading Mr. Liswood's article, I shared his excitement and arranged to purchase a Perstor controller posthaste. My difficulties began there.

The first problem I encountered was that the first step after physically installing the controller card was to modify the setup information to indicate that a hard disk *was not* installed. Unfortunately, this requirement was not disclosed in the documentation. Therefore, a call to technical support was

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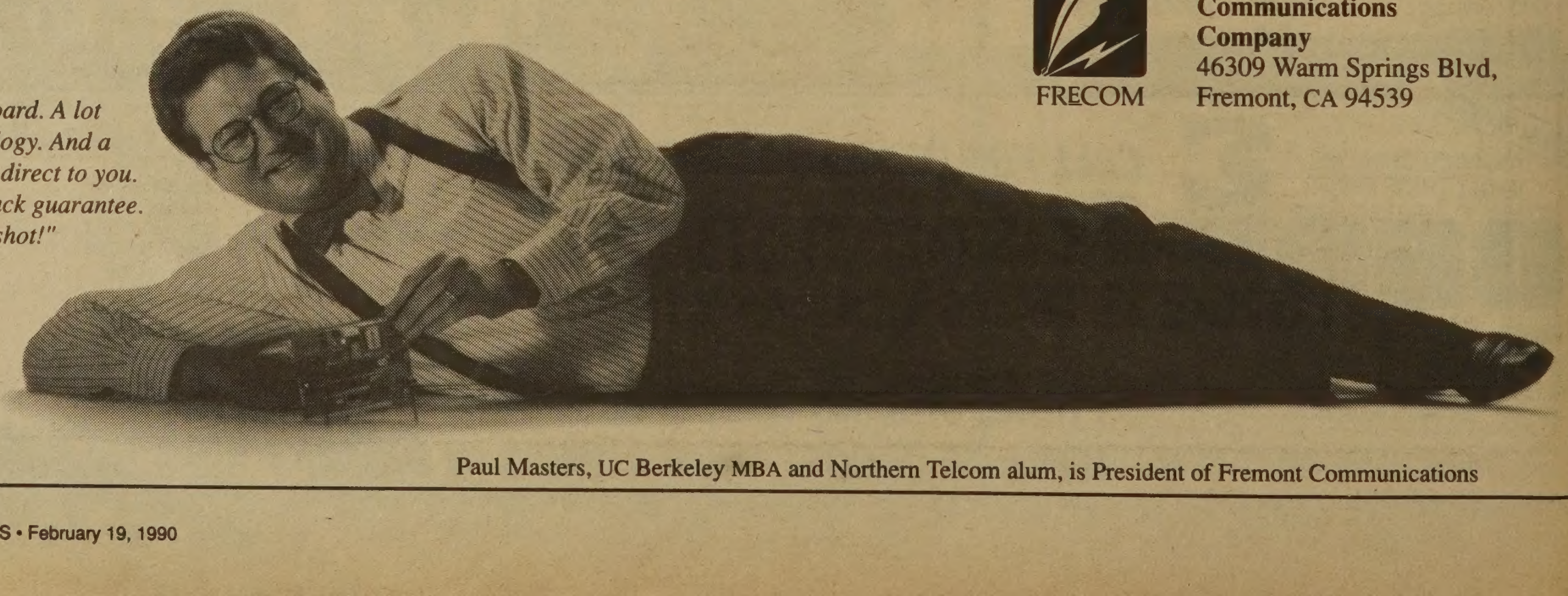

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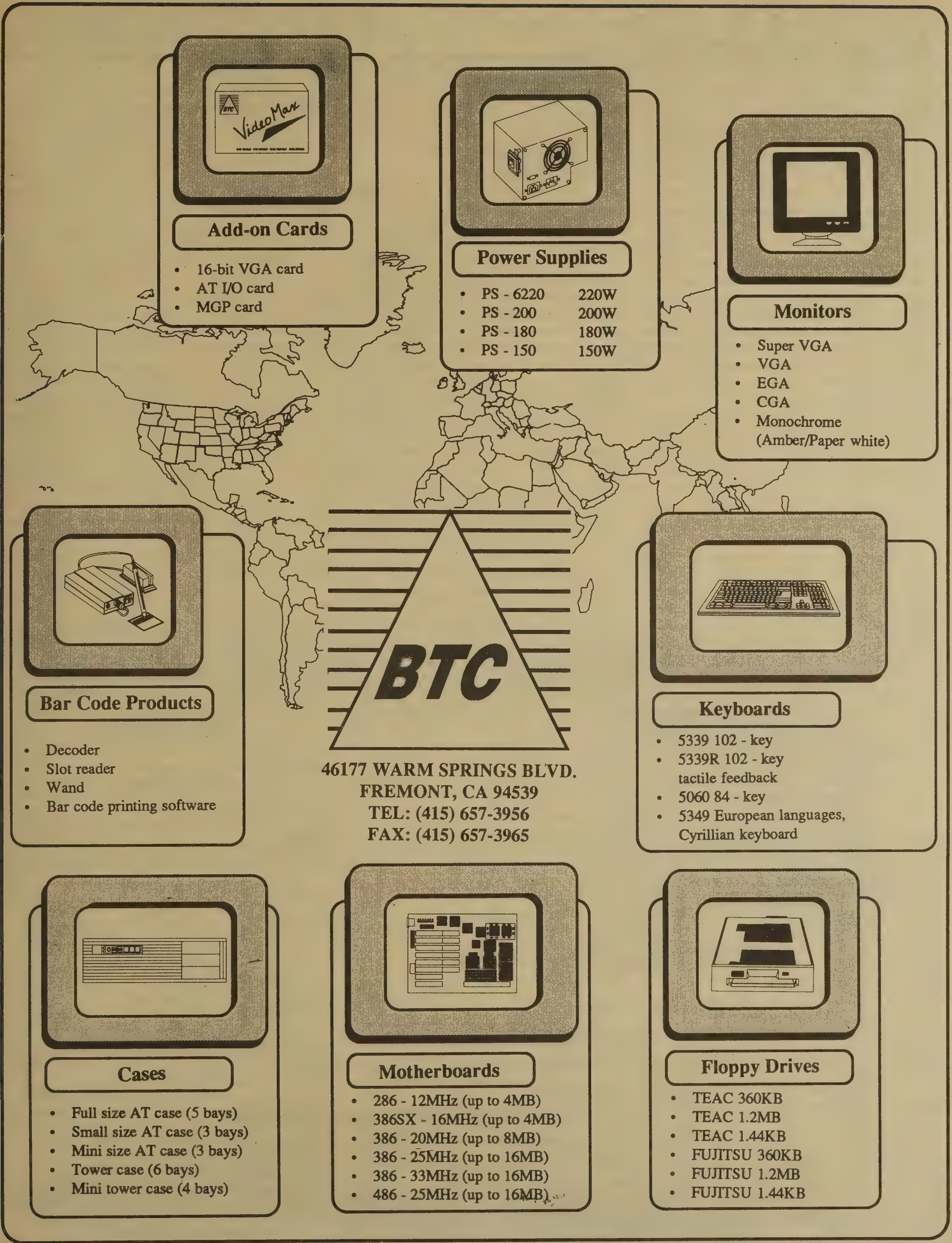

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required before I was able to perform a low level format of the hard disk.

When performing the low level format I had a vague uneasiness. It recommended 3:1 as the optimal interleave. I continued, however, and after performing the high level format I restored my data. Then came the most bitter blow of all.

I ran some performance testing of the Perstor controller. While the Perstor controller did increase my disk capacity to 130 Mb, the data transfer throughput (317Kb/sec) was but a mere 60% of what it had been with the MFM controller (522Kb/sec). I had lost 40% throughput!

Thus my second (paid) call to technical support came about. They indicated that indeed 3:1 interleaving was the best this relatively slow controller card could do. If 2:1 interleaving were optimal, then at least throughput would be relatively unchanged. Unfortunately, it was not to be.

The Perstor card was returned, the MFM card was reinstalled, low and high level formats again performed, and finally the data was reloaded.

The final solution was to obtain an RLL 1:1 card. Such a card is made by DTC and yields a 50% increase in capacity to 108 Mb with over a 40% increase in throughput to about 750 Kb/sec. I find this an eminently satisfactory solution.

It should be noted that the Perstor is an enhanced RLL variation. RLL encoding generally yields a 50% increase in capacity. Refreshing the low level format is a beneficial activity that should be performed at intervals. Neither of the cards will work with the program I use, Spinrite, that version 2 will operate with the Perstor but not the DTC cards.

I believe that *MicroTimes* readers may appreciate another user's experience with the Perstor.

Jeff Sampson
San Francisco

Even More Offended Amiga Users

One would think that after having your hands justly slapped by Amiga owners in the letter column of your November 27, 1989 issue that you would learn to exercise some self-restraint in echoing the conceited, smug self-promotion of the MS-DOS/Macintosh computing masses. I was surprised and rather displeased to discover that the contents of that selfsame issue not only ignored the sentiments of the Amiga and Atari ST users who wrote to you, but went further to offend them (and me).

In his article "The Top 10 Computer Games of 1989," Mike Markowitz states in the preamble to his rather iffy choices for top games that "The best 'game machines' are still the Amiga and the Atari ST, according to the experts, but only a lucky few players actually own one of these doomed systems." While Mr. Markowitz's previous offensive statement in his article on buying a first computer—that the Amiga "never really caught on"—was a bit irksome, though possibly defensible, Mr. Markowitz has flown off into the realm of the absurd and obscene.

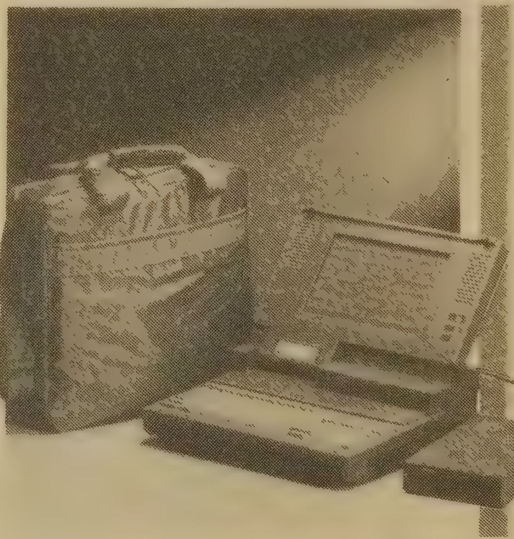
Quite frankly, Amigas are at least as widely used for video production as for pure "game machines." There are also many graphic artists, musicians, animators, desktop publishers, and designers (CAD and otherwise) working on the Amiga who are among the "lucky few" following the system into its sunset of inevitable doom. Well over a million people have decided that the world of MS-DOS and Macintosh computing have failed to meet their needs, and have purchased Amigas instead. With a widespread television and advertising campaign and a considerable push into academic and vertical business and home-business markets currently underway, that number should be rapidly growing.

A case in point: in your "PC Power" section of your November 27, 1989 issue, you suggest various options for outfitting your HP LaserJet to interpret PostScript code; you fail to state that you could in fact attach an Amiga outfitted with PostScript interpreting software at less cost than either of your hardware options.

I cannot help but feel that the habitual neglect of this exciting and cost-effective system is poor editorial policy. And in response to Mr. Markowitz, he has pointed out something that is doomed, though it is neither the Amiga nor the Atari ST. Either his arrogance or your credibility is doomed. Moreover, the continuation of Mr. Markowitz's repugnant, arrogant commentary in your paper will surely ensure that it is the latter which falls.

David Rohrl
San Francisco

For the record, we would welcome an informative article on the use of Amigas with Hewlett-Packard printers, laser and otherwise. To say nothing of the use of the Amiga in multi-vendor networked business environments. Interested writers are heartily encouraged to contact us.—eds.



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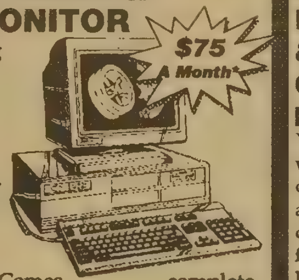

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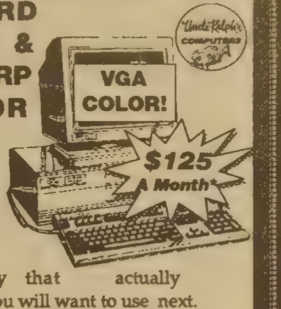

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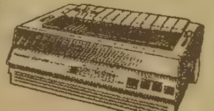

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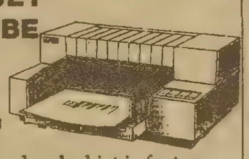

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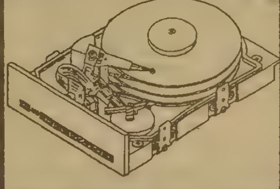

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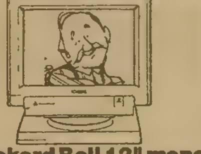

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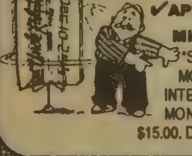

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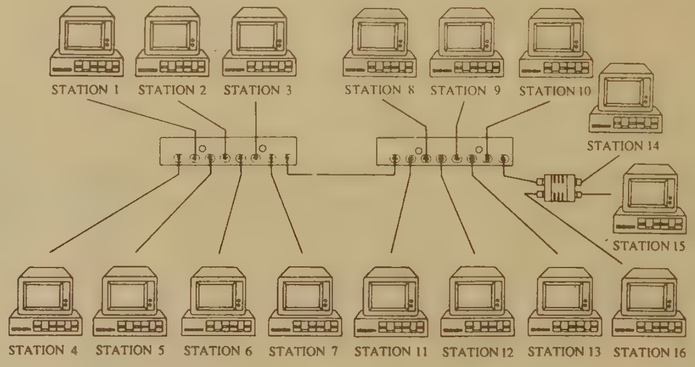

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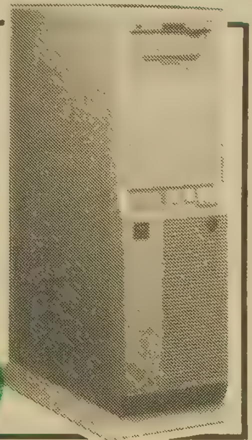

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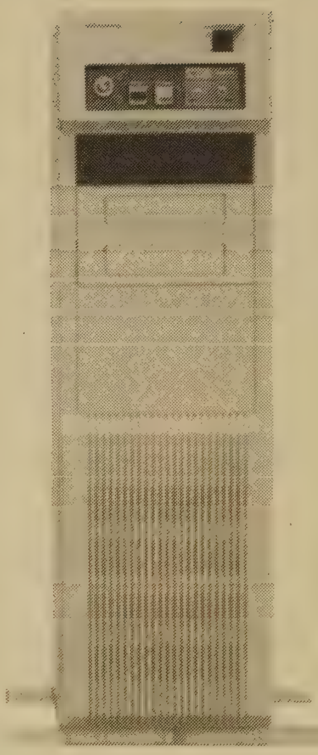

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- 101 Keytronic Keyboard
- Socket for 387-SX
- 3.3 or 4.01 DOS Included
- Real Time Clock

System Matrix	Mono	VGA
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System Matrix	Mono	VG
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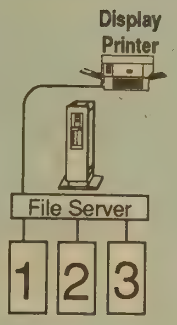

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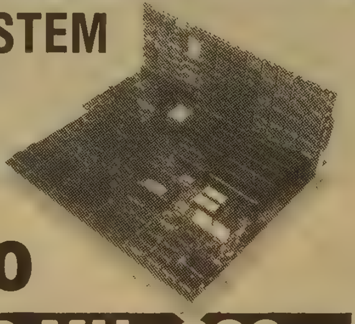

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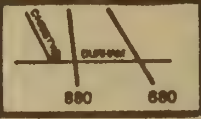

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February 23 Microsoft Works: Database Management Class. Fort Mason, Bldg. D, San Francisco. Computer Alliance. Call: (415)771-1671/7133.

February 23 Netware 286 System Administrator Class. Emeryville. DataNet. Call: (415)465-9084.

February 23 NetWare 386 System Administrator Class. Emeryville. DataNet. Call: (415)465-9084.

February 24 Basic Macintosh Class. Fort Mason, Bldg. D, San Francisco. Computer Alliance. Call: (415)771-1671/7133.

February 24 Introduction To Datacomm And Micro To Mainframe Connectivity Seminar. Emeryville. DataNet. Call: (415)465-9084.

February 24 PC Repair Class. Emeryville. DataNet. Call: (415)465-9084

February 24 Computer Show & Sale. Oakland. East-West Computer Shows. Call: (415)388-8893.

February 24–25 AutoLisp Level II Class. San Francisco. San Francisco State University. Call: (415)338-1205.

February 24 Writer In The Workplace Conference: Strategies For The Visual Revolution. American River College. Society For Technical Communication, Sacramento Chapter. Call: Connie Warlow, (916)484-8430.

February 25 East-West Computer Show & Sale. Santa Rosa. East-West Shows. Call: (415)388-8893.

February 26 Basic Macintosh Class. Fort Mason, Bldg. D, San Francisco. Computer Alliance. Call: (415)771-1671/7133.

February 26–March 2 COMPCON Spring '90 Conference. San Francisco. IEEE. Call: (202)371-1013.

February 26–28 3D Features/Release 10, Level III Class. San Francisco. San Francisco State University. Call: (415)338-1205.

February 26–28 Sun Expo Conference and Exposition. Washington, D.C. The Sun Observer. Call: 1-800-289-EXPO.

February 26–27 Programming SCSI Devices Tutorial. San Francisco. Uni-Ops. Call: Walter Zintz, (415)945-0448.

February 27–March 1 The Computer And Electronic Publishing Show. Chicago. Cahners Exposition Group. Call: 1-800-255-7798.

February 27 HyperCard III Class. Fort Mason, Bldg. D, San Francisco. Computer Alliance. Call: (415)771-1671/7133.

February 27 FoxPro End Users Class. San Francisco. DataNet. Call: (415)346-4452.

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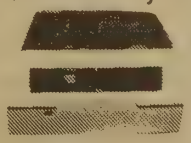
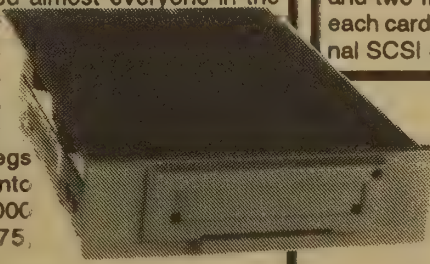


20 MB Irwin Drives(drive only) *$95*

These Irwin's are the faithful companions that have rescued almost everyone in the industry once or twice. They connect directly to any 286 or 386 floppy controller and spool 20megs per cartridge onto standard DC-2000 tapes. Qty5=$75, Qty10=$69.



Note: the above numbers represent honest *reliable* formatted capacities. CSC does not recommend the use of thin tapes to increase drive capacity.

Welcome to the world of SCSI

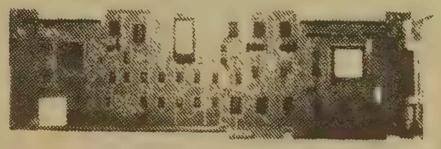
Hard drive interfaces have rapidly evolved over the years. Faster drives have demanded improved controllers as technology has evolved from MFM to RLL to ESDI interfaces.

It is now clear that the SCSI bus is the drive interface of the future. Imbedded SCSI controllers offer maximum performance since they are optimized to the drive. The SCSI bus offers the ability to daisy chain several high performance devices together on a single cable.

Until lately, most IBM users have been denied the luxury of the SCSI bus. More and more SCSI peripherals are being released daily. These include SCSI tape drives, WORM optical drives, CD ROM's, hard drives, scanners, and printers.

Due to an increased demand for SCSI products, CSC now carries a line of SCSI controllers for 286, 386 and 486 machines.

822 SCSI Controllers *$249*



The SMS 822 host adapter features the fastest SCSI data transfer rate available: Async up to 4.0MB/sec and Synchronous at 5.3MB/sec. These controllers will eat data as fast as any known SCSI device can pump it out.

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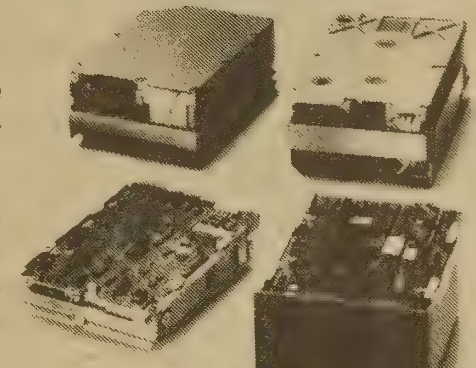

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February 27–March 1 Fifth International CD-ROM Conference And Exposition. San Francisco. Microsoft. Call: (203)352-8470.

February 28 Excel For The Macintosh Class. Fort Mason, Bldg. D, San Francisco. Computer Alliance. Call: (415)771-1671/7133.

February 28 Microsoft Word, Part I Class. Fort Mason, Bldg. D, San Francisco. Computer Alliance. Call: (415)771-1671/7133.

February 28 Desktop Publishing With Adobe Type Manager Seminar. Sunnyvale. M & P Computer & Communication Systems, Inc. Call: Donna, (408)738-8578.

March 1–4 15th West Coast Computer Faire. San Francisco. The Interface Group. Call: Victor Cruz, (617)449-6600.

March 1 RISC Computing And The CLIPPER Architecture Lecture. San Francisco. University of San Francisco. Call: (415)666-6530.

March 2–3 A/E/C—Architectural Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

March 3 Installing NetWare 286 Class. Emeryville. DataNet. Call: (415)465-9084.

March 5–7 3rd Annual 1990 Asia/Pacific Business Outlook. Los Angeles. Department of Commerce and USC. Call: (213)743-2272.

March 5–9 Conference On Artificial Intelligence Applications. Santa Barbara. IEEE Computer Society. Call: Se June Hong, (914)945-2265.

March 5–6 Fundamentals Of UNIX Class. Berkeley. Lurnix. Call: 1-800-433-9338.

March 5 MS DOS For CAD, Level 1 Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

March 5–8 Seybold Seminars Ninety Professional Publishing Conference. Boston. Seybold Seminars. Call: (213)457-5850.

March 6–9 PC Networking: Hands-On Workshop. San Diego. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

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March 7–8 UNIX And Open Systems Symposium. Toronto. Datapro. Call: (212)512-3851.

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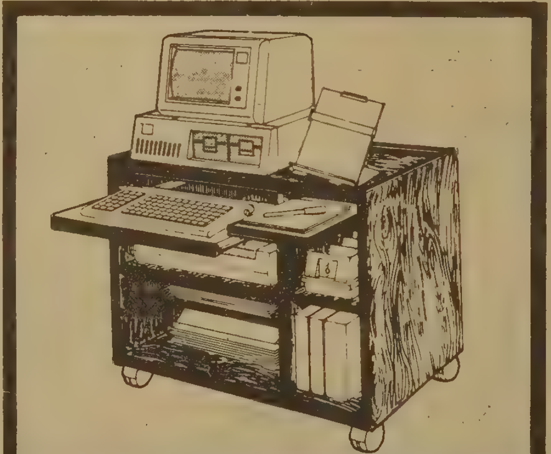

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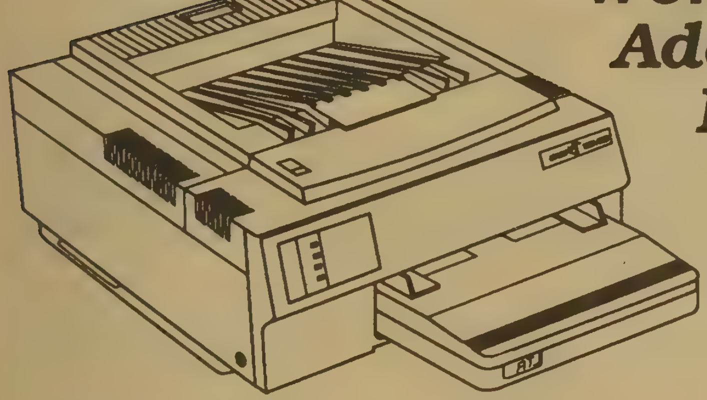

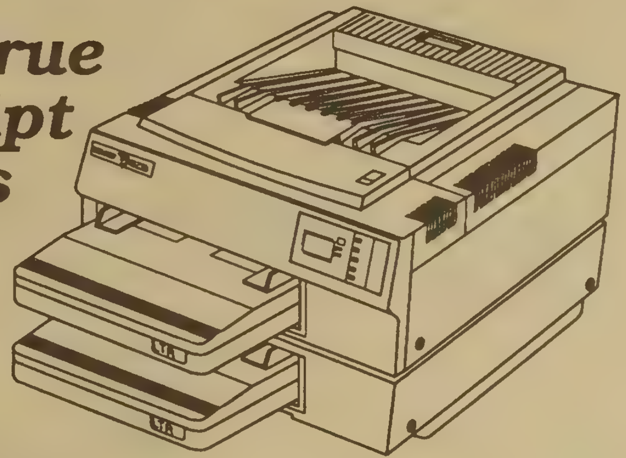

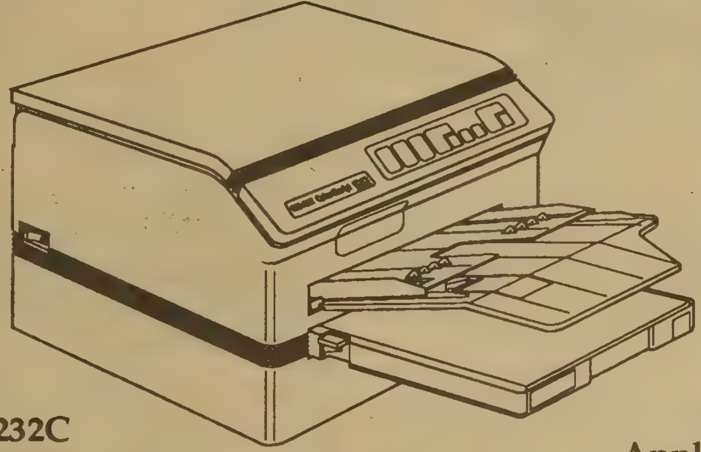

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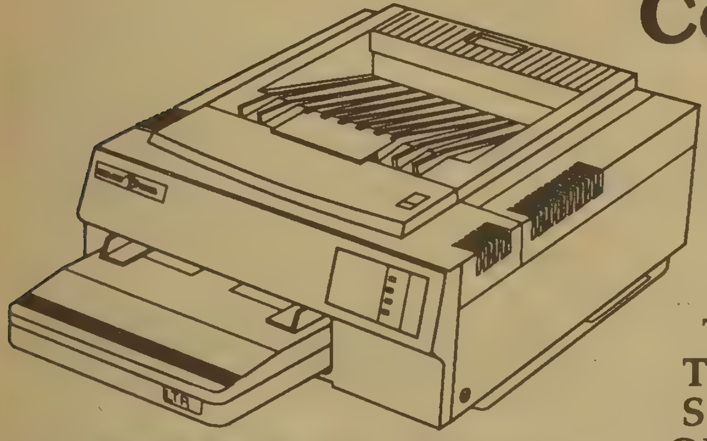

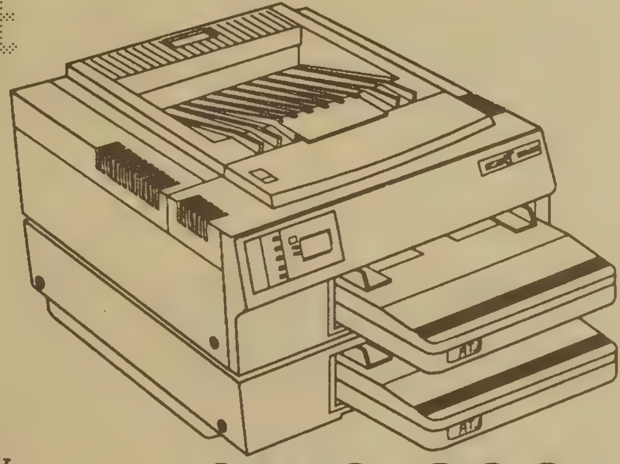

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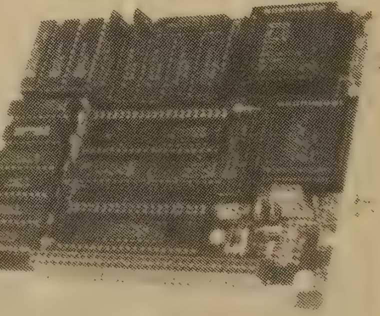

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March 7–9 Finance and Accounting for Technical Managers Seminar. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

March 7–8 Intermediate UNIX Class. Berkeley. Lurnix. Call: 1-800-433-9338.

March 8 How To Successfully Automate Your Accounting System—A Free Seminar. San Francisco. J.C. Lukrich & Co., CPA. Call: (415)864-6770.

March 9 PC Repair Class. Emeryville. DataNet. Call: (415)465-9084.

March 10 Netware 286 System Administrator Class. Emeryville. DataNet. Call: (415)465-9084

March 10 Computer Mart. Cupertino. De Anza College. Call: (408)864-8581.

March 11 San Francisco Computer Show, Sale and Swap. San Francisco Compu-Shows. Call: (415)931-0423.

March 11 Computer Show & Sale. Hayward. East-West Computer Shows. Call: (415)388-8893.

March 12 AISIG Meeting: The Emerging Role Of Inference-Based Data Processing. Santa Clara. Artificial Intelligence Special Interest Group. Call: Rita Zokaei, (415)574-8225.

March 12 Using X Windows Class. Berkeley. Lurnix. Call: 1-800-433-9338.

March 13–16 Hands-On Datacomm Troubleshooting Workshop. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

March 13–16 Microprocessor Troubleshooting: Hands-On Tools and Techniques Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

March 13–14 X Windows Programming I Class. Berkeley. Lurnix. Call: 1-800-433-9338.

March 13 Computer And Network Security In The 1990s Lecture. Techmart. UC Santa Cruz Extension. Call: (408)562-5700.

March 14–16 Software Maintenance Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

March 14 Introduction To WordPerfect Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

March 15 Installing Netware 386 Class. Emeryville. DataNet. Call: (415)465-9084

March 15–16 X Windows Programming II Class. Berkeley. Lurnix. Call: 1-800-433-9338.

March 15 MALCON: An Expert System To Assist With The Control Of Malaria, Lecture. San Francisco. University of San Francisco. Call: (415)666-6530.

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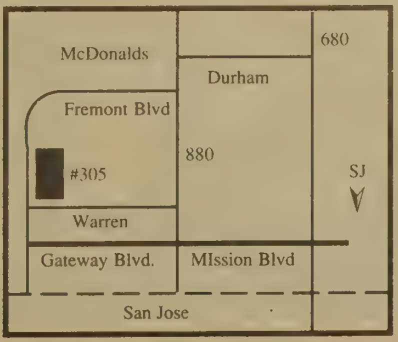

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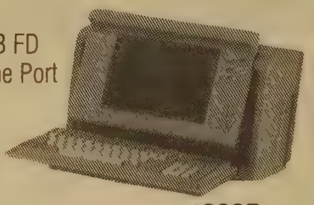

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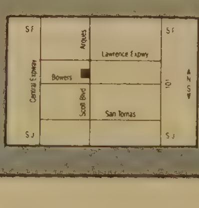

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March 16 Installing Netware 286 Class. Emeryville. DataNet. Call: (415)465-9084

March 17 Troubleshooting A Novell Network Class. Emeryville. DataNet. Call: (415)465-9084.

March 17 East-West Computer Show & Sale. Vallejo. East-West Shows. Call: (415)388-8893.

March 17 The Legal Issues of Seed Capital Startups Lecture. Techmart Silicon Valley Entrepreneurs Club. Call: (408)562-6040.

March 17 Software Marketing Seminar. San Mateo. Software Entrepreneurs' Forum. Call: Eric Gould, (415)968-8888.

March 19–20 Computing With Adaptive Neural Networks Seminar. San Francisco. AI Expert. Call: Angela Hoyte, (415)996-2471.

March 19–22 Intermediate C Programming Class. Berkeley. Lurnix. Call: 1-800-433-9338.

March 19 MS DOS for CAD, Level II Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

March 20–23 Communicating Effectively Class. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

March 20 How To Successfully Automate Your Accounting System—A Free Seminar. San Francisco. J.C. Lukrich & Co., CPA. Call: (415)864-6770.

March 20–22 Planning Local Area Networks Seminar. Palo Alto. Network Career Advancement Insititute. Call: (714)838-5458.

March 20 How to Build Your CAD System Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

March 21–23 FMS/AC CAD Facility Mapping Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

March 22 Netware 386 System Administrator Class. Emeryville. DataNet. Call: (415)465-9084

March 22 Godel, Julia Goldbach—What Have They To Do With Computing Over The Real Numbers Lecture. San Francisco. University of San Francisco. Call: (415)666-6530.

March 22–May 31 Advanced Programming In dBASE III+/IV, Clipper And FoxPro. Berkeley. Vista College. Call: (415)841-8431.

March 23 NetWare 286 System Administrator Class. Emeryville. DataNet. Call: (415)465-9084.

March 24 PC Repair Class. Emeryville. DataNet. Call: (415)465-9084.

March 25 Computer Show & Sale. Sacramento. East-West Computer Shows. Call: (415)388-8893.

March 25–28 The 1990 SPA Spring Symposium. San Diego. Software Publishers Association. Call: Jodi Polock, (202)452-1600.

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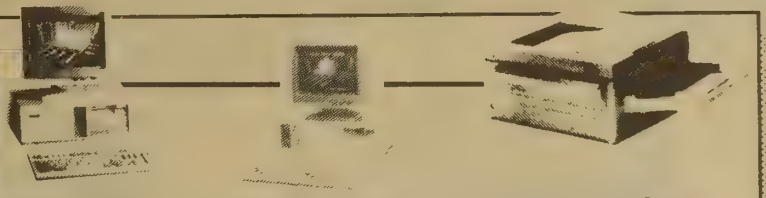

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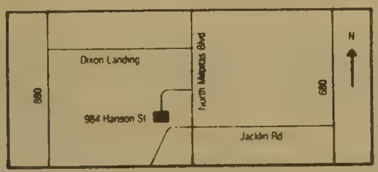

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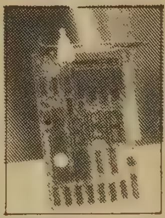

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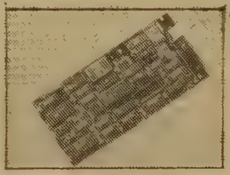

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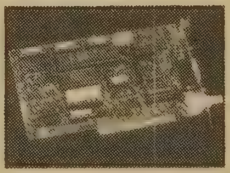

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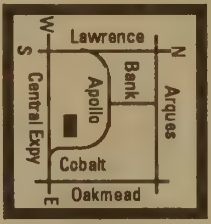

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March 26–27 Concepts in System Operation Class. Berkeley. Lurnix. Call: 1-800-433-9338.

March 26 IBM PC & DOS Training Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

March 27 Philippe Kahn, President Of Borland Lecture. San Francisco. Bay Area Users Groups. Call: (415)788-5338.

March 27–30 Introduction To Datacomm & Networks Course. San Francisco Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

March 27–30 Real–Time Programming: A Hands–On PC Workshop. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

March 27–29 Supercomputing Japan '90. Tokyo, Japan. Meridian Pacific Group. Call: (415)381-2255.

March 27–29 DB/EXPO '90: The National Database Exposition And Conference. San Francisco. Norm De Nardi Enterprises. Call: 1-800-2DBEXPO.

March 27 Introduction To Novell Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

March 28–29 System Administration Class. Berkeley. Lurnix. Call: 1-800-433-9338.

March 28–30 Mechanical Design & Drafting Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

March 29 Cellular Automata and Artificial Life Lecture. San Francisco. University of San Francisco. Call: (415)666-6530.

March 31 Computer Law For The '90s Symposium. Communications and Entertainment Law Journal. Call: Kyra Reppen, (415)565–4731.

March 31 East-West Computer Show & Sale. Oakland. East-West Shows. Call: (415)388-8893.

April 1–2 Computer Game Developers' Conference. San Jose. Call: (408)942-0387.

April 1 East-West Computer Show & Sale. Santa Rosa. East-West Shows. Call: (415)388-8893.

April 2–3 Fundamentals of UNIX Class. Berkeley. Lurnix. Call: 1-800-433-9338.

April 2 MS DOS For CAD, Level I Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

April 3–6 C Programming Hands-On Workshop. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

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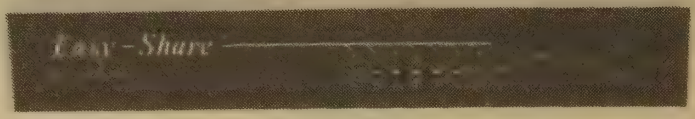

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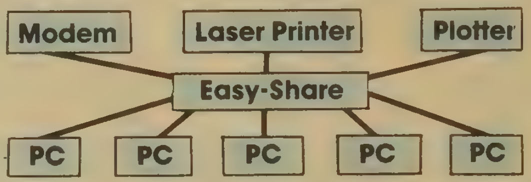

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April 3–6 Microprocessor Software, Hardware, And Interfacing: Hands-On Introduction. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

April 3–6 Basic AutoCAD, Level I Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

April 3 Multimedia Composition Lecture. San Francisco. University of San Francisco. Call: (415)666-6530.

April 4–6 Fourth Annual Parallel Processing Symposium. Fullerton. IEEE Computer Society. Call: Dr. Larry H. Canter, (714)738-3414.

April 4 Automating Your Business Accounting System On The Macintosh—A Free Seminar. San Francisco J.C. Lukrich & Co., CPA. Call: (415)864-6770.

April 4–5 Intermediate UNIX Class. Berkeley. Lurnix. Call: 1-800-433-9338.

April 5–7 Leadership And Technology: A Vision Of Tomorrow Today Conference. Santa Clara. Computer-Using Educators. Call: (415)692-4300.

April 5–6 Network Management Alternatives And Troubleshooting Seminar. San Francisco. Network Career Advancement Institute. Call: (714)838-5458.

April 5 Macintosh And Multimedia For Kids Lecture. San Francisco. University of San Francisco. Call: (415)666-6530.

April 7 Installing Netware 286 Class. Emeryville. DataNet. Call: (415)465-9084.

April 9 Microsoft Word for Windows Level 1 Class. San Francisco. PC Etcetera. Call: Lee Van Sluyters, 1-800-232-1886.

April 9–10 Word Perfect 5.1 Level 2 Class. San Francisco. PC Etcetera. Call: Lee Van Sluyters, 1-800-232-1886.

April 9–11 CAD For Supervisors Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

April 10–12 Aerospace And Defense Trade Exhibition: Finding New Markets. Santa Clara. American Electronics Association. Call: Chuck Jungi, (408)987-4204.

April 10 Multimate 4.0 Level 1 Class. San Francisco. PC Etcetera. Call: Lee Van Sluyters, 1-800-232-1886.

April 11–13 The Business Person's Computer Show. Anaheim. International Spectrum University. Call: (619)578-3152.

April 12–13 The Western Educational Computing Workshops. Northridge. California Educational Computing Consortium. Call: (415)338-1212.

April 12 Lotus 123 Release 2.2 Level 2 Class. San Francisco. PC Etcetera. Call: Lee Van Sluyters, 1-800-232-1886.

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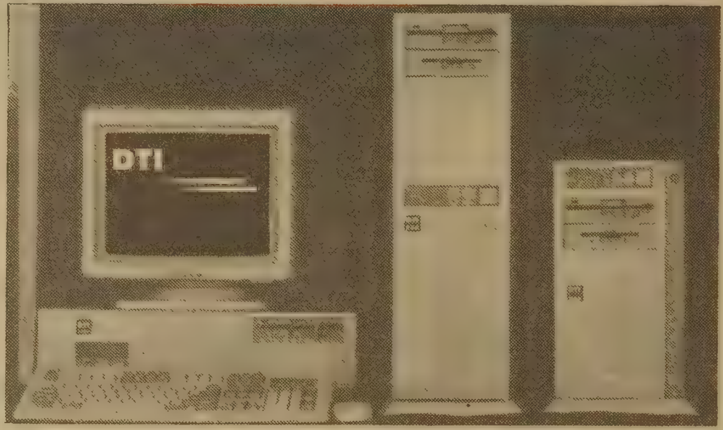

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CALENDAR OF EVENTS *continued*

April 13 PC Repair Class. Emeryville. DataNet. Call: (415)465-9084.

April 14 Netware 286 System Administrator Class. Emeryville. DataNet. Call: (415)465-9084.

April 14 De Anza Computer Mart. De Anza College. Call: (408)864-8581.

April 16 Using X Windows Class. Berkeley. Lurnix. Call: 1-800- 433-9338.

April 16–18 Animator Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

April 17–20 Computer Graphics: Software Techniques & Hardware Components Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

April 17–18 X Windows Programming I Class. Berkeley. Lurnix. Call: 1-800-433-9338.

April 18 Word Perfect 5.1 Level 1 Class. San Francisco. PC Etcetera. Call: Lee Van Sluyters, 1-800-232-1886.

April 19 Installing Netware 386 Class. Emeryville. DataNet. Call: (415)465-9084.

April 19–20 X Windows Programming II Class. Berkeley. Lurnix. Call: 1-800-433-9338.

April 19 Paradox 3.0 Level 1 Class. San Francisco. PC Etcetera. Call: Lee Van Sluyters, 1-800-232-1886.

April 19 Computer Dreams—Featuring Amanda Pays Lecture. San Francisco. University of San Francisco. Call: (415)666-6530.

April 20 Installing Netware 286 Class. Emeryville. DataNet. Call: (415)465-9084.

April 21 Troubleshooting A Novell Network Class. Emeryville. DataNet. Call: (415)465-9084.

April 21–22 AutoLISP Level II Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

April 23–24 Using UNIX Power Utilities Class. Berkeley. Lurnix. Call: 1-800-433-9338.

April 23–25 3D Features/Release 10, Level II Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-7275.

April 24 Lotus 123 Release 2.2 Level 1 Class. San Francisco. PC Etcetera. Call: Lee Van Sluyters, 1-800-232-1886.

As a community service, MicroTimes lists trade shows, seminars, and other special events in the Calendar of Events free of charge on a space-available basis. To improve the likelihood of your listing's timely inclusion, please make sure we have the necessary information no later than the first of the month, two months before the coverdate of the issue in which you'd like it to appear (i.e., the deadline for the March issue, distributed during February, is January 1). Send to: MicroTimes Calendar of Events, 5951 Canning St., Oakland, CA 94609.

News about user group meetings and other regularly scheduled activities should be sent to User Group Network at the same address.

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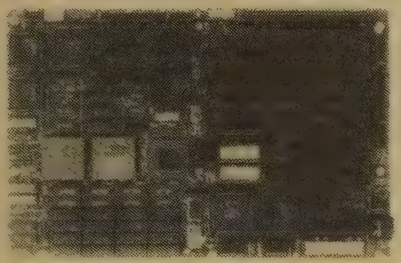

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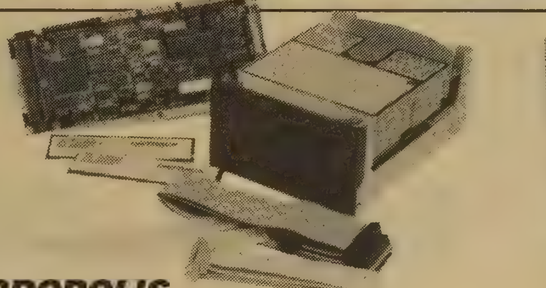

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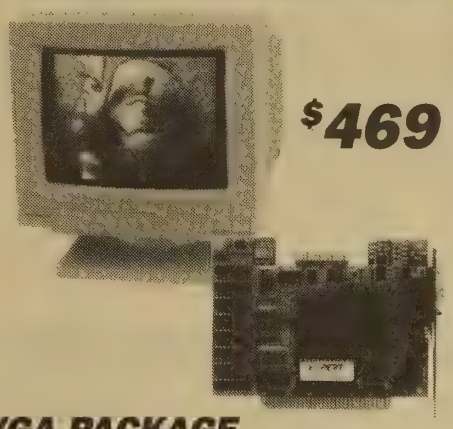

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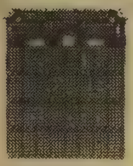

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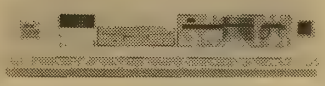

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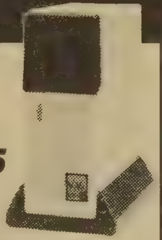

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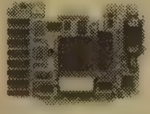

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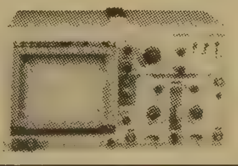

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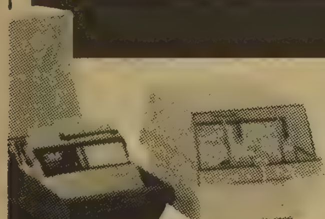

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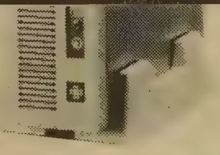

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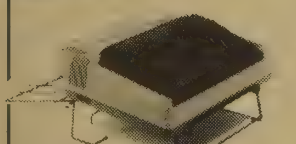

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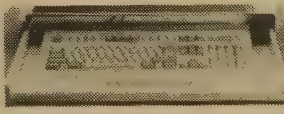

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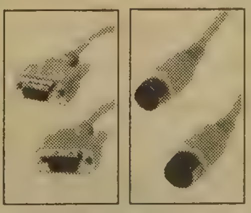

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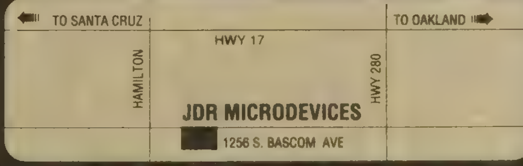

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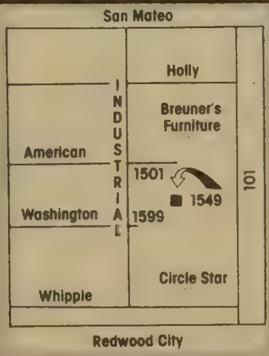

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NEWS
AND ANALYSIS

BY PAUL HOFFMAN

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Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on USENET (phoffman@well) and MCI Mail (264-3171). He also writes popular microcomputer books.

Lotus Shipping Workgroup Software, Shirley Leaving Microsoft, IBM Offering True 486

Lotus Ships Notes For Large Workgroups

When Lotus first started showing a new application called Notes in early 1988, many people thought that it could revolutionize the way that people interacted within a company. Essentially, Notes is a communication and schedule interface that can learn about what people do within a group and what they're interested in.

Now that Lotus has begun shipping the product, it is apparent that the company knew more than it was saying at the time. Instead of Notes being like a standard PC product, where you buy one copy per worker (or maybe a multiuser network copy that is limited to a small number of people), Notes comes in a single package that can run on up to 200 machines. It requires the users to be running Windows or OS/2 on an 80286 or 80386-based PC; it requires a dedicated server with five megabytes of RAM if you're running OS/2, and it costs (get ready) $62,500.

> **One of the best features of Notes is that it can handle text and graphics from a variety of applications without requiring the users to have those applications in order to read them.**

Still, it is expected that there will be many customers for Notes. One of the best features of Notes is that it can handle text and graphics from a variety of applications without requiring the users to have those applications in order to read them. This lets everyone in a corporation with many standards for word processing or graphics to communicate equally.

Like Lotus Agenda, Notes presents the shared information to the user based on that user's preferences and priorities. Thus, two people who get sent (or, as is often the case, have access to) the same document might see it in very different manners.

Selling Notes will bring Lotus directly into the end-user market for the first time. It is likely that the Notes sales force will have to promise a great deal of handholding and training in order to make any sales. Like all software, Notes will take a while to catch on, and the salespeople may have to be content with one or two sales each in the first few years. Lotus will be reliant on Microsoft and IBM to move OS/2 more rapidly into the corporate world, but they will soon have the advantage of having an OS/2 version of 1-2-3 to help get their feet into the doors of large companies.

President Jon Shirley To Leave Microsoft

Jon Shirley, the man who led most of Microsoft's wild expansion in the 1980s, will leave the company by mid-year, probably to retire comfortably with his $40 million of Microsoft stock. His announcement said that there were no hard feelings between him and Microsoft founder Bill Gates, but that he simply had had enough of the day-to-day management of the corporate giant. After he leaves in June, he will remain on Microsoft's board of directors.

Microsoft is looking for a replacement both inside and outside the company, although the likely successor will have to be someone who can deal with the Gates style. Shirley came to Microsoft from Tandy, at the time a major partner with Microsoft. The most likely successors to Shirley are Steve Ballmer, who has been with Microsoft for over a decade and oversees all operating system work, and Mike Maples, a long-time IBM executive who is now in charge of applications at Microsoft. Many think that Maples has the edge, due to his still-close ties with IBM, Microsoft's leading partner.

IBM Announces True 80486-Based PS/2

In a move that will help set realistic price and performance standards for 80486 systems, IBM announced the Model 70 486 as its first system that uses the 80486 as the base CPU. Previously, IBM users had to buy a high-end Model 70 system and add a 80486 board (called the Power Platform) to it, essentially paying for two CPUs even though only one could be used at a time. The system has only three slots free, making it useful only to people with limited communications needs.

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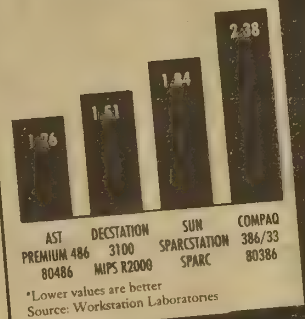

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Source: Workstation Laboratories

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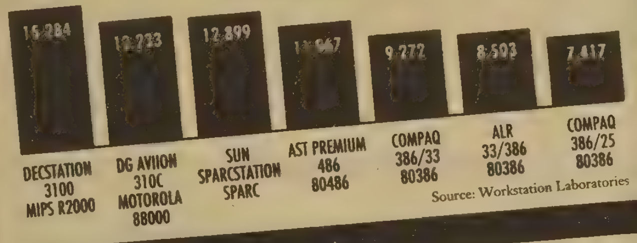
All systems were equipped with appropriate numeric co-processors and tested under UNIX



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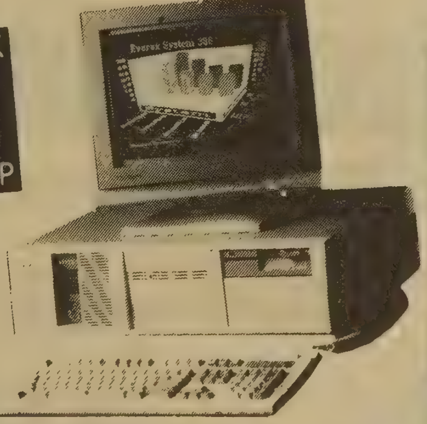

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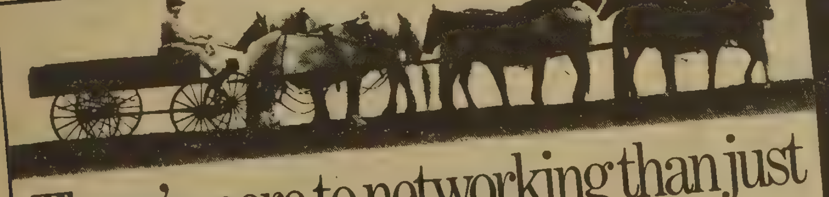

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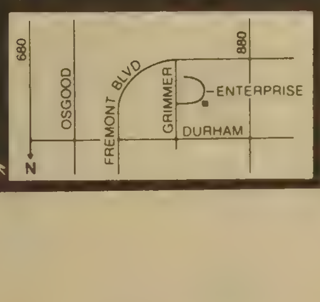

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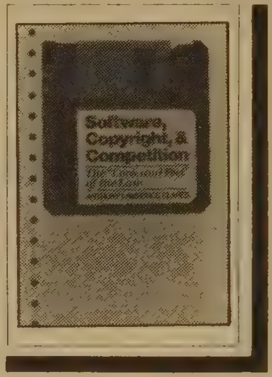

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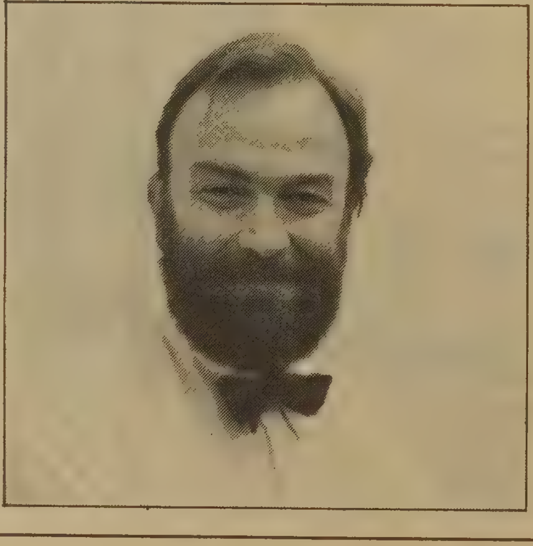

UNIX?

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NEWS AND ANALYSIS

The price on the new system, $12,395 with a 60 Mb drive, will not scare any of IBM's competitors, who are already shipping systems at half that cost. It is unlikely that IBM will sell many of the 80486-based systems, since the companies that delivered them first not only have lower prices, but their machines run significantly faster. The only reason to buy an 80486-based system right now is pure speed, since there are no applications or operating systems that take advantage of any of the 80486's features. In fact, Microsoft is not expected to release a version of OS/2 that takes advantage of the 80486 for two years. Thus, IBM's 80486 systems offer no advantage (other than the name) over faster systems from companies like AST and ALR.

Borland Offers Programming Interface To Paradox

Among business application programmers, there is a great deal of argument about what to use as the base for custom-made programs. Some argue that they should be based on dBASE IV, since it is an "industry standard," while others opt for one of the many back-end products that are much faster and easier to program.

Borland may help change that argument when it releases its Paradox Engine in the next few months. The Paradox Engine is a programmer's interface to databases created with the popular Paradox database management system. The Paradox Engine, which will cost $495, is a set of C routines that give programmers access to Paradox data in exactly the same fashion as users of the Paradox package have.

For instance, Paradox's highly touted multiple access capabilities are fully supported in the engine and thus in programs based on the engine. The availability of the Paradox Engine gives Paradox users a big boost, since they can still use Paradox's friendly PAL user interface but can have programmers write specialty code to read and write their databases in a reliable fashion.

It is likely that software companies with mainframe and minicomputer interfaces to dBASE will adapt their products to also work with Paradox, since the switch will not take much work. Also, Borland expects to see more links between Paradox data and spreadsheets from other manufacturers, as well as from their own Quattro.

Lotus Branches Out

1990 will be the year that various flavors of 1-2-3 spread throughout the computing community. Lotus has announced and shown its long-awaited 1-2-3G windows-based program for OS/2 and has now announced that character-based versions of 1-2-3 version 3 will be available on UNIX and mainframe computers.

The first target system, expected to ship within six months, will run on all three types of Sun systems (SPARC, 68000 family, and the Sun 386i). Lotus also announced that the price will be fairly low by workstation standards: $700 for single-user software, or $1,000 for a network version and $500 for each person running the software from the net. The UNIX versions will be essentially the same as the

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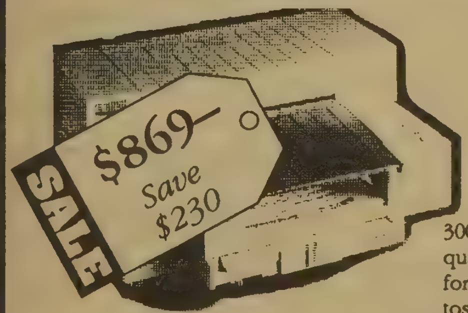

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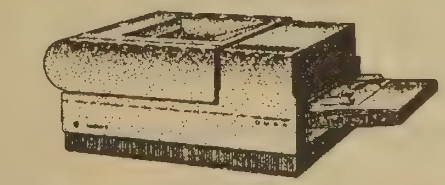

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NEWS AND ANALYSIS

PC-based version, except that the user will be able to see many more windows of information and the windows will be resizable.

Lotus did not go into any detail about the mainframe version, but it is likely to behave exactly like the PC-based version without any extra window features and to cost at least 20 times more.

Xerox Sues Apple Over Interface Ideas

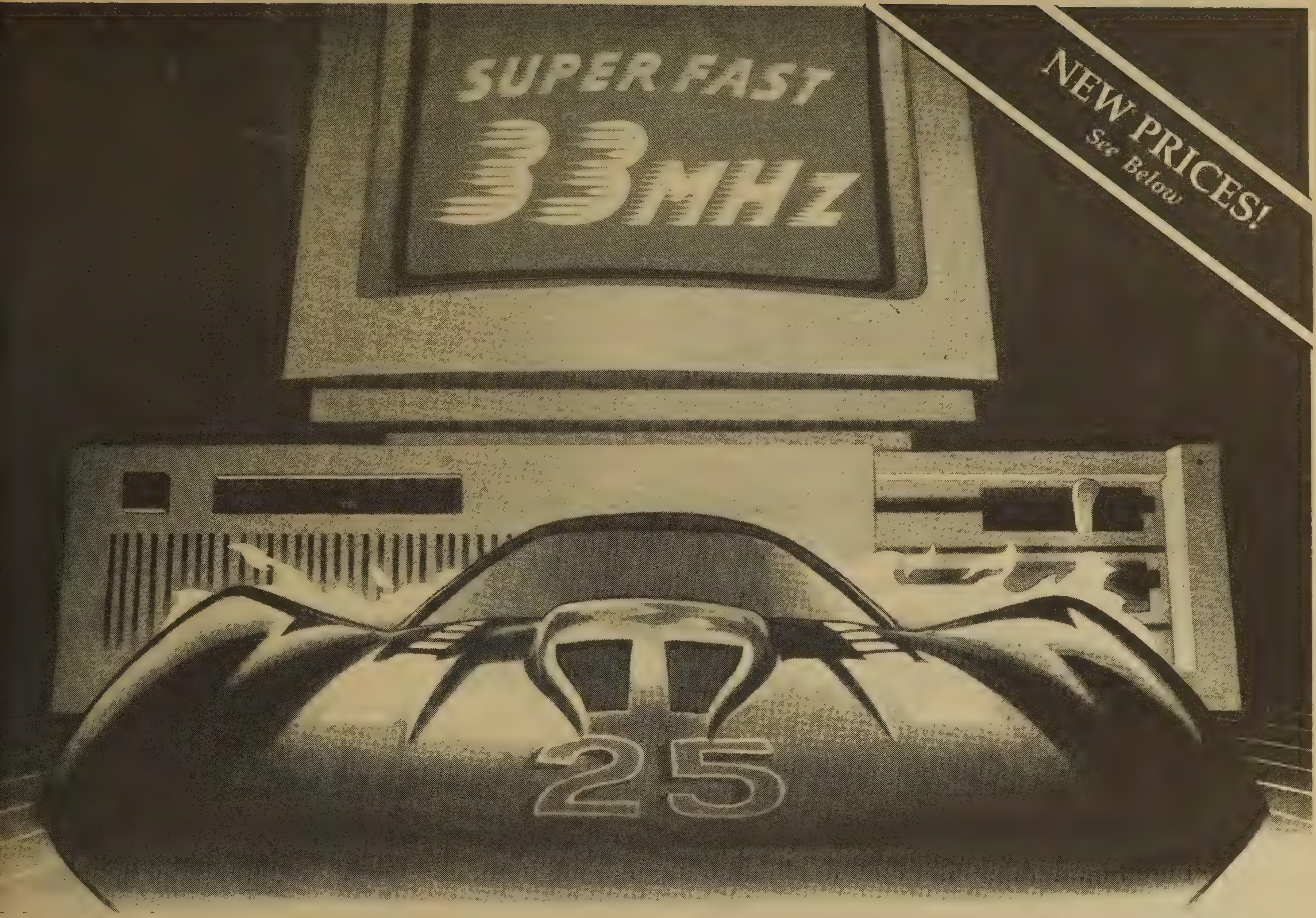
You may be sick of reading about lawsuits in the microcomputer field, but the manufacturers insist on bringing them regardless of what the users feel. In the current big-stakes game (and it really is a game, not a pursuit for truth or justice), the tables have turned, and now Apple is the object of a suit from Xerox, claiming damages for Apple's contention that it owns the copyright on the Macintosh user interface.

Xerox's suit, seven years after Apple released the Lisa, is considered to have little chance of getting far in court, since it was brought so late and it will be very difficult for Xerox to show actual damage. The suit will also require Xerox to lay claim to things that many people in the computer field do not believe are theirs, such as the "look and feel" of icons and scroll bars. Apple has, of course, denied the allegations and will gladly throw its lawyers into the fray.

> **Xerox has many major hurdles to overcome in its suit against Apple. The most important reason the suit may not fly is that the look of Apple's interface is very different from its Xerox counterpart.**

Xerox has thus sullied its image as the altruistic developer of the interface that almost everyone is using (or will probably be using in the next five years) and replaced it with that of yet another money-grubbing hardware manufacturer who can't make enough money through innovation, so they turn to litigation. Until recently, Apple was almost alone in that distinction.

Apple's lawsuit two years ago against Microsoft started to draw the lines of who was in favor of



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protecting user interfaces and who wanted the interfaces to be openly available to all; the majority chose against Apple. Now, they can also be against Xerox, which developed many of the concepts currently used by Apple in the Macintosh and which now wants to claim that some of those things are copyrightable.

Xerox has many major hurdles to overcome in its suit against Apple. The most important reason the suit may not fly is that the look of Apple's interface is very different from its Xerox counterpart. It appears that Xerox is claiming the ideas behind the interface (scroll bars, icons, overlapping windows, and so on), not the way that they look on the screen.

Unfortunately, ideas cannot be copyrighted, only implementations. As anyone who has seen or used a Xerox Star can attest, the windows look quite different from Lisa or Macintosh windows. Although the scroll bars are at the bottom and right, the controls for moving around in the window are quite different. There is no universal menu bar; each window has its own (similar to Microsoft Windows). Although it is clear that Apple borrowed liberally from the ideas that Xerox developed for the Star, that's not illegal (nor did Apple ever claim to come up with the ideas themselves).

Xerox's claim that the Lisa and Macintosh copyrights "overlap" with Xerox copyrights will also put them on very shaky legal ground. In the recent *Brøderbund vs. Unison World* case, the court held that screen layout and actions are distinguishable from the underlying ideas and thus can be copyrighted. Clearly, if Apple's screens looked just like Xerox's with only a few pixels changed or a slightly different layout, there would be more to argue about. However, the screens look very different, much more so than Windows and Macintosh.

A third issue that may sink Xerox's case is the fact that the company waited seven years after the Lisa was introduced to bring the case. This can only be seen as a bad-faith gesture on their part, since they clearly knew about any potential infringement for that entire time. Generally, taking more than three years to make such a claim is considered unacceptable by most courts. Although Xerox has worded its arguments to indicate that it waited so long because Apple only recently started claiming a copyright on the interface, that is also clearly untrue, given that it was more than two years ago that Apple sued Microsoft.

With the weakness of the suit, it is not clear why Xerox bothered. Xerox used to have a reputation as the great innovator, but now is reduced to buying companies with innovative products (such as Ventura desktop publishing) and suing others. Of course, one can ask the same question about why Apple sued Microsoft, since it knew that it had already signed almost all of the copyrightable material away to Microsoft in 1985.

The unfortunate answer is that the lawyers have been whispering in the ears of the industry leaders that the best way to intimidate others is to sue. Clearly, Xerox has very little left with which it can intimidate Apple. The big question is why Xerox even wants to intimidate anyone, let alone someone who gave their ideas the biggest boost they could possibly get. ■

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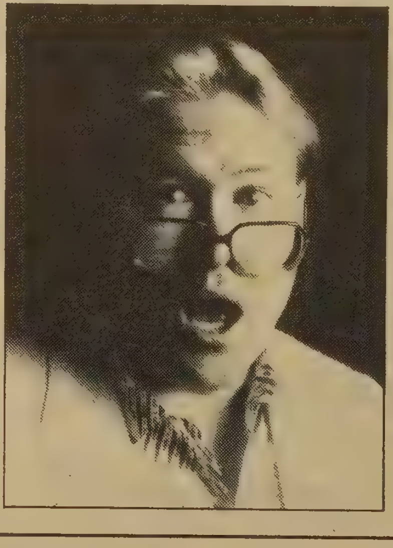

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Computer Highlighters, Communications, And History Worth Repeating

Some nations are good at duplicating; we are good at originating. Let us continue:

An Electronic Highlighter

This idea could be as significant as Dan Bricklin's mid-'70s "impossible" fantasy of computerized spreadsheets:

Last September, Physician Tim Hamill of San Francisco wrote to suggest an electronic highlighter—akin to the marking pens we use to note key words and phrases in articles.

It would plug into your computer (or keyboard?) and be used like a marking pen, drawn across words and phrases of interest. OCR techniques (optical character recognition) would convert the scanned images into text, feeding them into an appropriate database—along with citation information identifying the original document. Citations could often also be scanned, especially with user-supplied filing codes indicating where the original is filed. Spell-checking of scanned text and computer-appended entry dates could be helpful.

Characters not recognized by OCR would remain in bitmapped graphic form, awaiting human translation at the user's convenience —usually without needing to look back at the original document.

(TransImage started such a gadget in 1983, produced an exciting first version, ran into nontechnical problems, sold its technology to Everex—and little has been seen since.)

Intelligent Communications

Tovar has suggested that telephone answering machines be more discriminating. Let's use a single phone line and have a single machine act as a voice answering machine, and a fax, and a computer modem.

The answering unit could see if an incoming call is from a fax or modem. If the caller gives a standard fax tone, the call would be routed to the fax or fax plug (to which a fax might be attached). Ditto for a computer modem tone.

Fax machines and computer modems should do the same. In the absence of hearing a fax or modem tone, they should route calls to a voice telephone plug—or built-in voice answering machine.

As an exercise for the reader—here's a problem to test your creative problem-solving abilities. Fax and modem communication standards require that the calling unit wait quietly until the answering device speaks/squeals. Human callers to a phone number shared by humans and fax/modem machines will hardly be overjoyed by first hearing squealed fax and modem "greetings." How would you resolve this—in a manner palatable to humans? Of course, you must also not obsolete the millions of modems and fax units already in use.

Aside: Who's Tovar?

As I think about it, I've known him for almost two decades, but only as "Tovar." He's one of those compu-wizards, well known within the San Francisco Peninsula's elite artificial intelligence (AI) and computer music circles—simply as "Tovar."

Back in the mid-'70s, he was one of several young high-schoolers permitted to have accounts on the old PDP-10 at Stanford's AI Lab. The computer ID assigned to him was "TVR"—and that's all we've ever known him by since then.

Though the AI Lab is long-gone, Tovar remains—one of the experimenters with Stanford's esoteric Center for Computer Research in Music and Acoustics.

DPI—Quantity Vs. Quality

Could you see 1,000 separate dots if they were crowded into a single inch? Nope.

Could you ascertain that one dot of that thousand was 1/1000 of an inch out of alignment with the rest? Probably. (Note: The visual ability to detect miniscule misalignment is the basis for the design of micrometers.)

Therefore, sez Unidot's Bob McClure, we don't need laser printers (and toner inks) that will produce a thousand dots per inch. What we do need is the ability to *position* each dot within a thousandth of an inch.

And, apparently, some Japanese manufacturers are having difficulty accepting this vision.

What Could We Do If We Tried?

None of the following major computer tools was originally designed for production use—BASIC, Pascal, C, UNIX or CP/M (which begat MS-DOS).

Kemeny and Kurtz developed BASIC at Dartmouth in 1965, as a very simple language to learn and implement, for use in teaching novice students the fundamentals of programming.

Klaus Wirth designed Pascal, circa 1970, as "a language suitable to teaching programming as a systematic discipline" and as a language that would allow "reliable and efficient" compilation "on presently available computers"—e.g. the huge CDC6000 Klaus used in Zurich.

Dennis Ritchie, at Bell Labs, designed and implemented C in the early 1970s. It was a research follow-on to an obscure machine-oriented language called BCPL, and was used for a 1973 rewrite of an experimental minicomputer operating system—called UNIX.

Let's use a single phone line and have a single machine act as a voice answering machine, and a fax, and a computer modem.

Bell Labs researchers created three versions of UNIX in the period of 1969-1974—several years before the introduction of microcomputers. The first version ran on Digital Equipment Corporation PDP-7 and PDP-9 minis; the third version, coded in C, ran on DEC PDP-11s. All were created for internal research on operating systems design.

Gary Kildall created CP/M in his spare time, while teaching computer science at the Naval Postgraduate School in Monterey. He was consulting part-time for Intel, located in Silicon Valley. Frustrated with working on an Intel time-sharing system over shaky phone lines, he scratched together a rudimentary disk operating system—CP/M — so he could do his consulting work on a Intel microcomputer development system at his home.

Aside: Microsoft did not create DOS. Seattle Computing originated it, as a cheaper alternative to Gary's CP/M. Microsoft bought it for a fast leap into the operating system market for a new compute—called the IBM PC.

(Hmmm — now that I think about it, PL/I *was* intentionally designed for production work. Maybe we'd better stick to design by accident.)

Quickies

In the early days of computing, who predicted that ten computers would be quite sufficient to meet the world's needs for computing in the foreseeable future? Answer: Thomas J. Watson, Sr., the internationally renowned head of IBM.

Have you noticed how PC-"compatible" has little to do with user-"friendly"?

It's reported that the huge Consumer Electronics Show is run by a guy named Wyman, who defined a personal computer as any computer that costs less than $500.

Share Where? Share Here!

Send suggestions to share to Jim Warren, Realizable Fantasies, 345 Swett Road, Woodside, CA 94062. Published proposals will be attributed to their authors unless anonymity is requested. ■

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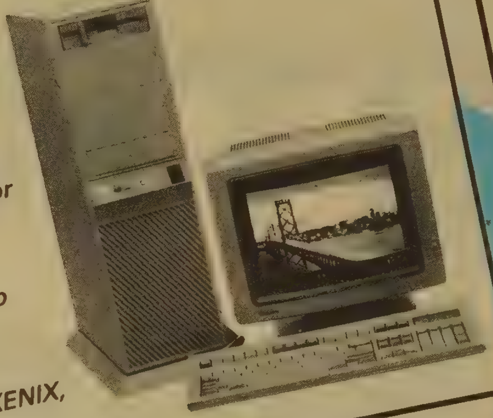

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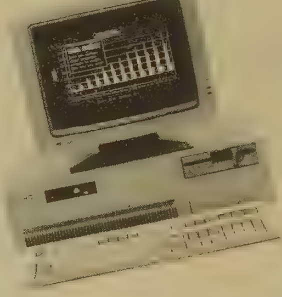

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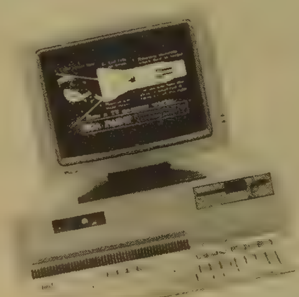

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Landmark = 19.5 SI = 18

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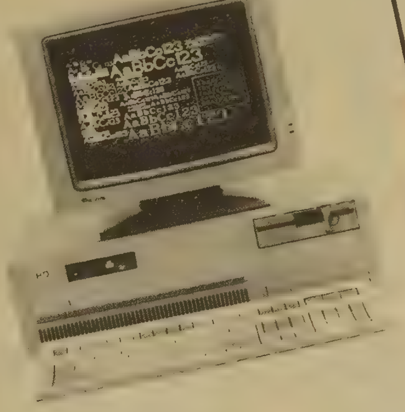

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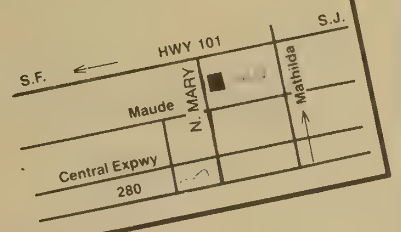

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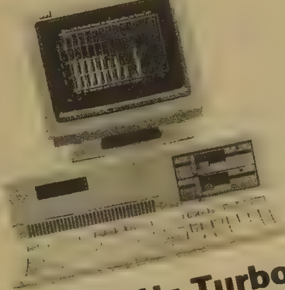

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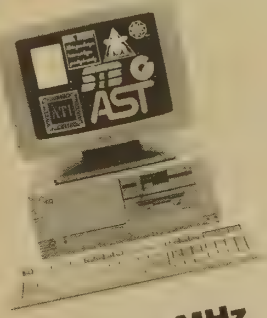

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Informix At 10:

Meeting The Corporate Database Challenge

By Mary Eisenhart

A year ago, Informix Software, a leading vendor of relational database software, seemed to be headed for serious trouble for the first time in its steadily successful career. Its stock plummeted 20 cents a share as long delays plagued new products and the company struggled to reorient itself to a market interested not only in fast, accurate corporate database management but in flexible, easy manipulation and presentation of information—to say nothing of a great reduction in the hostility of user interfaces.

By January 1990, Informix was celebrating its tenth anniversary in fine style. Its powerful windowing spreadsheet for the Macintosh, Wingz, had finally shipped to acclaim from developers, who liked its HyperScript language, a powerful tool for creating custom Wingz-based applications, and users, who liked its power and ease of use. Its stock was doing well enough to position the company high on the San Francisco Chronicle's top 10 Bay Area performers. And at a lavish anniversary celebration in San Francisco, Informix announced a host of alliances with companies including NeXT, the Santa Cruz Operation, and Claris. It announced versions of Wingz for NeXT, OS/2, and SCO's Open Desktop. Perhaps the biggest news in the connectivity department was Wingz DataLink, which gives users of Wingz on any platform point-and-click access to data stored in Informix databases.

It also wowed everybody in attendance with a demonstration of a real-estate package, which used a Mac II to access information in an Informix database on a Sun server. Various windows showed listings, mortgage payment calculations, and other such information, while others showed scanned photos of houses. Clicking on a particular house brought up more detailed information and photos, including a mug shot of the friendly local realtor. Click on the realtor, and you got a full-motion video tour of the house, running in yet another window. As it was meant to, the demo left the audience with the clear sense that all of a sudden there's a lot more to database software than there used to be.

Founded by recent UC graduate Roger Sippl in 1980, Informix has historically been a pioneer of relational database technology, with its greatest presence in the UNIX world. It shipped the first commercial UNIX-based relational database management package in 1981, the first UNIX fourth generation language programming tool in 1986, and the first UNIX online transaction processing database in 1987. Its clients include the likes of Boeing, Ford Motor Company, General Motors, Hyatt, K-Mart, McDonald's, and the London Underground. It does nearly half its business outside the US, and is particularly strong in Europe.

In 1988 Informix merged with Innovative Software in Lenexa, Kansas. Innovative Software was working on a Mac spreadsheet called Wingz, which was eventually to give FullWrite Professional a run for the money as longest-delayed Major Mac Product, and had a DOS-based office automation called SmartWare. Both featured sophisticated programming options that made it easy for developers to construct custom applications, and both now assume strategic importance as accessible front ends for Informix databases on mainframe and minicomputer platforms.

During 1989, Informix recruited IBM, Altos, and Wyse veteran Phillip White to assume the CEO position, allowing chairman Sippl (who also serves as chairman of X/Open's Independent Software Vendor Council and is active in many standards organizations) to concentrate on product and technological development. Together they form a respected and effective team, positioning the company to serve its clients by taking advantage of state-of-the-art technology.

Phillip White:

Strategic Planning For A Changing Business World

A year ago, some analysts perceived Informix as all but dead in the water, and this year you're anything but. What changed and why?

I think we've always had good products. It was just the execution, from a management standpoint, of getting expense ahead of revenue. We resized the company early last year, brought in some more seasoned management, put better focus inside the company, and in nine to 12 months we literally went from losing 20 cents a share to making close to that.

I think the real success is the positioning for '90—we've got new products, a new strategy across the company, and all-new management to execute it, and a lot of people excited with the products we've announced at the recent sales meeting, and, I think, a lot of customers excited about the technology we're shipping. And some analysts who believe that we have the right products at the right time, and that UNIX is the right operating environment to be in. It all culminates in a good '89, but a great opportunity for 1990.

How much of that is due to Wingz?

Roger Sippl:

Better Access To More Information Putting It All In The Database

The story goes that when you got out of college and interviewed for a job at Apple, Steve Jobs decided you couldn't program because you wore a suit to the interview and so you didn't get the job.

(Laughs) That was one of the elements. Mostly I didn't know 6502 assembly language. That was the biggest problem. That was 1977.

So you went to Cromemco instead.

Right. I interviewed at both Apple and Cromemco, and they were both actually the same size. Coming out of college, I had done a lot of business consulting, building database applications for Bechtel and Wells Fargo Bank. I got a bachelor's degree in computer science from UC Berkeley.

Was it a big UNIX school then, too?

Yes, it was. Ken Thompson was visiting lecturer, and was working on what was probably UNIX Version 7. As students, we were using UNIX Version 6. That was the hot, the exciting computer to be taught on; the other students had to use the batch processing machines with punch cards, but if you were really lucky you got into the classes and got to be

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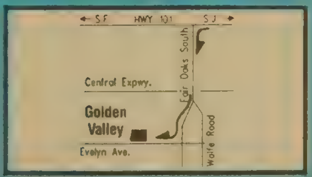

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Phillip White:

Wingz is strategically very important to us. From a revenue standpoint, it isn't that big a revenue generator.

So most of your sales are still at the database end?

Right. But Wingz gives us the ability to have a common graphical piece of software that runs across all the desktop machines, and can be a window into our database. Which, I think, starts to separate us from most of our database competitors, and separates us from most of our office automation competitors.

Oracle or Sybase, for instance, don't have anything like it.

And neither does Microsoft or Lotus. So it gives us some unique positioning and an end-to-end strategy that really sets us apart from the competition.

Are there any particular qualities of Wingz that make it strategically important?

Two things. One, it's three-dimensional, and probably the best of all the graphical spreadsheets. A spreadsheet is important because everybody understands the paradigm of the spreadsheet, and so it's a great way to get people to start to manipulate data and view it graphically.

Second, it runs on every desktop, unlike Lotus or Excel. This runs on DOS and Mac and OS/2 and a variety of UNIX interfaces, and ties seamlessly to our database. So Wingz is important, and it will, I think, start to separate itself out as the best spreadsheet in the marketplace.

To what extent will the different versions of Wingz talk to each other? Can PCs and Macs and NeXTs swap files, for instance?

The beauty of what we've done with Wingz is that we all can view data the same way. Even though it's a different piece of hardware, a different operating system, and a different graphical interface, the data will all be the same. So you could load a piece of data on our database, and we could all have different machines, and bring it up and look at it the same way. It'll all graphically be the same. That's what's unique—there's not a single application that I know of on any desktop that has the ability to span every desktop.

We think that large and small customers will want a site license for Wingz, so for one price we'll give everybody who's got a desktop machine the same piece of software, and the ability to access and view data the same way.

That's what really is exciting. Our VARs, our resellers, who write applications around our software, can now put this front end, Wingz, into their application, and sell it to any desktop, and can access our database on any of four or five hundred UNIX machines.

Has the programming language in Wingz, which is more sophisticated than, say, HyperTalk, but much easier to deal with than SQL, opened up Informix applications to a new category of software authors?

Yes. It's easier. HyperScript is a professional support development tool, so people sitting at desks can write applications to manipulate data in a pretty easy-to-use scripting language. It's not SQL, it's not 4GL, it's easier to use. So people who are used to programming on any of those desktop machines find HyperScript very friendly.

Are you seeing a new class of applications as a result? There was a very flashy real estate demo at your press conference, where you click on the broker and get a video tour of the house... This is not something you would have thought of Informix doing a few years ago.

You wouldn't do that robust an application all in HyperScript. To do that application takes a good part of our new multimedia database feature, the ability to have voice, image, graphics, and text, and the window-

continued on page 52

Photos: Michael Jay

Informix starts its second decade under the formidable leadership of CEO Phillip White and Chairman/Founder Roger Sippl

Roger Sippl:

taught computer science on the interactive UNIX systems. So state-of-the-art back then was interactive timeshared computing. That was some exciting stuff.

That's where I was introduced to UNIX, but when I got out of school I was quite disappointed that none of the job ads in the classified section said anything about UNIX. They all wanted all sorts of initials that I'd never heard of in Berkeley—DOS, VSC, CICS, OS, all these different mainframe operating systems that I was completely unfamiliar with. At the time I felt that I had been somewhat shortchanged by my university computer science training, where all my friends that were getting out of state colleges or city colleges studied exactly COBOL programming on IBM mainframes, and they seemed to be much more employable.

But looking back on it, I think the fact that I learned the abstract computer science concepts, data structuring and algorithm design and the nature and structure of computer programming languages in an abstract sense, allowed me to envision the need for a new generation of programming languages which led to our pioneering of fourth generation languages for database applications. Also, the data structuring concepts I learned there allowed me to see that the relational data model really would be a viable high performance production database management system model, and that it could be done technically, even though there were a lot of naysayers in 1980.

So looking back on it now, I'm a big advocate of high-level computer science education, but when you first get out of school and you're looking for a job, sometimes it's a little hard to understand.

So what did you do?

Well, when I went to work at Cromemco and was interviewing at Apple, I wanted to get a job. I was making a lot of money as a consultant, actually, but I wanted to get out of the mode of an hour worked, a dollar earned. The notion of taking a thousand hours of effort and producing a piece of packaged software and then selling that piece of packaged software as many times as you can appealed to me much more than just going and working another thousand hours and then working another thousand hours.

So my model was, work a chunk of time, develop a piece of packaged software that can be reused by lots of people for building database applications. If you would have charged them a thousand hours' worth of money, now you can charge them 500 hours' worth of money; they get it half price, and they're well on their way to their application, and you can sell it as many times as you want. That was my goal, to learn how to build a piece of packaged software and to learn how to entrepreneur a company, and Silicon Valley was where a lot of both those things were going on.

So I came down. At the time, Cromemco was more of a business-oriented microcomputer company than Apple was—Apple was more targeted for the hobbyist market. Cromemco hired me to build database products for their microcomputers, mostly to help in mailing list applications to go along with their word processing products.

They were CP/M based machines, right?

Yes. This was before MS-DOS existed, of course. The CP/M operating system was actually one of the first pieces of packaged software for microcomputers, and then Microsoft BASIC was another, WordStar and dBASE.

But I had done consulting work on high-end million-dollar minicomputers when I was doing consulting at Bechtel, and there were packaged software products on mainframes, and I was watching the packaged software business on microcomputers. The price points were remarkably different—a few hundred dollars

continued on page 58

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286/12 (512 KB)							
Basic System	$499	$599	$649	$749	$999	$1,124	$1,249
w/20 MB Hard Disk (65 ms/MFM)	$699	$799	$849	$949	$1,199	$1,324	$1,449
w/42 MB Hard Disk (39 ms/MFM)	$809	$909	$959	$1,059	$1,309	$1,434	$1,559
w/65 MB Hard Disk (25 ms/MFM)	$899	$999	$1,049	$1,149	$1,399	$1,524	$1,649
386/16SX (1 MB)							
Basic System	$779	$879	$929	$1,029	$1,279	$1,404	$1,529
w/42 MB Hard Disk (28 ms/MFM)	$1,099	$1,199	$1,249	$1,349	$1,599	$1,724	$1,849
w/65 MB Hard Disk (28 ms/RLL)	$1,179	$1,279	$1,329	$1,429	$1,679	$1,804	$1,929
w/80 MB Hard Disk (25 ms/MFM)	$1,349	$1,449	$1,499	$1,599	$1,849	$1,974	$2,099
386/25 (1 MB)							
Basic System	$1,049	$1,149	$1,199	$1,299	$1,549	$1,674	$1,799
w/42 MB Hard Disk (28 ms/MFM)	$1,369	$1,469	$1,519	$1,619	$1,869	$1,994	$2,119
w/65 MB Hard Disk (25 ms/RLL)	$1,449	$1,549	$1,599	$1,699	$1,949	$2,074	$2,199
w/80 MB Hard Disk (28 ms/MFM)	$1,619	$1,719	$1,769	$1,869	$2,119	$2,244	$2,369
w/100 MB Hard Disk (17 ms/ESDI)	$2,149	$2,249	$2,299	$2,399	$2,649	$2,774	$2,899
w/150 MB Hard Disk (17 ms/ESDI)	$2,349	$2,449	$2,499	$2,599	$2,849	$2,974	$3,099
386/25C (1 MB)							
Basic System	$1,549	$1,649	$1,699	$1,799	$2,049	$2,174	$2,299
w/42 MB Hard Disk (28 ms/MFM)	$1,869	$1,969	$2,019	$2,119	$2,369	$2,494	$2,619
w/65 MB Hard Disk (25 ms/RLL)	$1,949	$2,049	$2,099	$2,199	$2,449	$2,574	$2,699
w/80 MB Hard Disk (28 ms/MFM)	$2,119	$2,219	$2,269	$2,369	$2,619	$2,744	$2,869
w/100 MB Hard Disk (17 ms/ESDI)	$2,649	$2,749	$2,799	$2,899	$3,149	$3,274	$3,399
w/150 MB Hard Disk (17 ms/ESDI)	$2,849	$2,949	$2,999	$3,099	$3,349	$3,474	$3,599

386/33C Price Matrix	No Monitor/Card Included	VGA 720 x 400 256 Colors	SYNC 800 x 600 256 Colors	NEC 2A 800 x 600 256 Colors	HIRES (14") 1024 x 768 256 Colors	HIRES (16") 1024 x 768 256 Colors	HIRES (20") 1024 x 768 256 Colors
386/33C (1 MB)							
Basic System	$2,099	$2,599	$2,724	$2,824	$2,849	$3,449	$4,899
w/42 MB Hard Disk (28 ms/MFM)	$2,419	$2,919	$3,044	$3,144	$3,169	$3,769	$5,219
w/65 MB Hard Disk (25 ms/RLL)	$2,499	$2,999	$3,124	$3,224	$3,249	$3,849	$5,299
w/80 MB Hard Disk (28 ms/MFM)	$2,669	$3,169	$3,294	$3,394	$3,419	$4,019	$5,469
w/100 MB Hard Disk (17 ms/ESDI)	$3,199	$3,699	$3,824	$3,924	$3,949	$4,549	$5,999
w/150 MB Hard Disk (17 ms/ESDI)	$3,399	$3,899	$4,024	$4,124	$4,149	$4,749	$6,199
w/340 MB Hard Disk (17 ms/ESDI)	$4,199	$4,699	$4,824	$4,924	$4,949	$5,549	$6,999
386/33C (4 MB)							
Basic System	$2,449	$2,949	$3,074	$3,174	$3,199	$3,799	$5,249
w/42 MB Hard Disk (28 ms/MFM)	$2,769	$3,269	$3,394	$3,494	$3,519	$4,119	$5,569
w/65 MB Hard Disk (25 ms/RLL)	$2,849	$3,349	$3,474	$3,574	$3,599	$4,199	$5,649
w/80 MB Hard Disk (28 ms/MFM)	$3,019	$3,519	$3,644	$3,744	$3,769	$4,369	$5,819
w/100 MB Hard Disk (17 ms/ESDI)	$3,549	$4,049	$4,174	$4,274	$4,299	$4,899	$6,349
w/150 MB Hard Disk (17 ms/ESDI)	$3,749	$4,249	$4,374	$4,474	$4,499	$5,099	$6,549
w/340 MB Hard Disk (17 ms/ESDI)	$4,549	$5,049	$5,174	$5,274	$5,299	$5,899	$7,349

Note: Maximum resolution & colors reflected in video specifications./All Monitors measure 14" diagonally unless otherwise noted.

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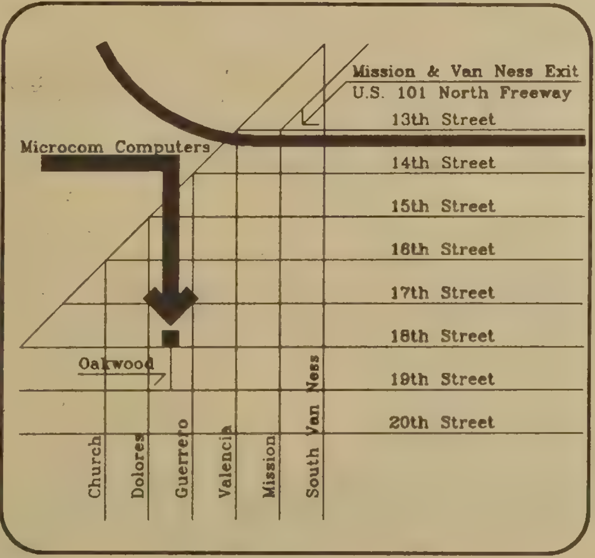

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Phillip White:

continued from page 48

ing capability of Wingz, and combines the strength of both. You'd do that, probably, in a fourth generation language.

If you wanted to just manipulate data and put bars and charts and graphs and those kinds of things, that's what HyperScript's for. It really is to make professional support easier, so professionals sitting at desktops can have decision support tools that can be developed with HyperScript. Robust applications like that one, which does graphs and image and calculations in various windows, takes a more robust environment.

But the beauty of that is, the engine is very fast, so if you have all these users on all these desktops hitting this database, it's very, very fast. It's very fault-tolerant, so when you do load images of houses, you don't have to reload it if the machine goes down. And lastly, it has all the features of enhancing productivity at the user level.

So Wingz is a window into all these features, and the features enhance the ability to make applications easier, like looking at pictures versus reading numbers—listening to somebody describe the picture, having full-motion video to look at the picture from all angles and sides, like the inside and outside of a house, and, in another window, calculating the mortgage payments. It's an exciting bit of technology—I think the beauty of it is that everybody can understand what the technology can do for you, so you don't have to be a rocket scientist to figure out how you can implement our products. And they carry a wealth of technology with them.

You seem to think multimedia's pretty real.

Oh, sure. Multimedia's real in the sense that it's a great way to enhance the productivity of people through easier-to-use applications. As long as you view it like that, it makes a lot of sense to say, "I can learn how to use a computer easier if somebody talks to me, or if help screens are pictures. I can learn how to manipulate data easier if it's in windows and I can just point and click at it. I can understand applications easier if I can share data among all the people in my department, even though we all have different desktop machines."

You don't have to be an evangelist in the Apple sense to pick up on why multimedia is a great productivity tool. I think we're the first company to ship it in conjunction with a database and a tool that runs on any desktop machine, and a lot of people integrate the two. Our strength in 1990 will be that a company can call us up and buy our software, that literally encompasses the desktop, the server, and the high-end environment, and get better support, better integration of those products, from one company. You can run on any hardware that you want, including DOS and OS/2.

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Is there any particular reason you're porting to NeXT before OS/2?

We're porting to OS/2, but there's more demand for the NeXT. There's no demand for OS/2 today. We ported to NeXT because NeXTStep is a good graphical interface; IBM may in fact do something with that graphical interface, and Businessland, which is the largest domestic reseller, is one of our larger resellers. With NeXT and NetFRAME—we're porting to NetWare 386 for NetFRAME—we see a great synergy in the distribution channel with NeXT, NetFRAME, and all of our other products. So it was a strategic decision to get the NeXT implementation done fairly quickly, so we could get some mindshare of the Businessland sales and marketing

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THE WAY TO REACH COMPUTER RESELLERS IN THE WESTERN UNITED STATES

teams.

Do you think the NeXT is going to succeed?

Yeah, I think Steve's got a great software implementation, and to the extent he can get out of the development syndrome into the commercial environment he'll have success. And to the extent that we can get our products on there and help him do that and attract the 1,000-1,500 people who write applications around our products, that'll help him get there much faster. And Businessland could be the distribution vehicle to take it across the country.

Is it your impression that Corporate America in its current state takes the NeXT seriously?

I think today it's viewed as a great development machine, and they're waiting to see "Is this the machine that I want to roll all this software out on?" Because, you know, they can develop it in UNIX and run it on anything. So I think Steve still has to prove that his machine can be used more than just as a development machine, and really compete head-on with Mac and OS/2 and all the versions of UNIX machines, like Sun and others.

I don't think it's a foregone conclusion that he's got a winning product yet. I think he's got a great ease-of-use product that has a nice opportunity. If people like us and our resellers get on his platform very fast, then he'll have a great chance. Because he's got one of the best distribution channels in the business with Businessland, but it has to have some application content running on it.

You come from the hardware world to the software world. What are the differences?

The biggest difference is R&D. R&D in software is a very, very long cycle, and you really don't know when you're there yet. You can have checkpoints in development, but you really don't know you're there until you're there. In hardware you can see exactly how the hardware's progressing, and you know when you're done because you see the box completed.

I think the similarity is in relationships. Everybody we sold to in my various hardware jobs with IBM and Altos and Wyse were literally the same people we [at Informix] sell software to, and the relationships are paying off in large quantities; if you look at the number of people we had who influence the industry at our recent sales conference—Gordon Bridge from AT&T, Scott McNealy from Sun, Steve from NeXT, Bill Campbell from Claris, Doug Michels, the co-founder of SCO—those were all relationships we've built over the last couple of years, and I think that's the big similarity.

Nobody's big enough to do this by themselves; everybody needs others who have competitive strengths that can match yours and be more successful getting them to the marketplace. Our success will really depend on the relationships we continue to build and establish and foster, and so I spend a lot of time ensuring that we have relationships with all the resellers in the marketplace and make our products as attractive as possible to them without having any conflict. It's a great balancing act of building relationships with a lot of different competitors, yet having them feel like they have great access to all of our people and our technology, and no one company has more leverage against us.

But I think the relationships are also important in the leveraging sense. If we can get other companies that have larger sales forces than ours to sell our products, it just enhances the number of people we have on the street selling, installing, and supporting. I think our opportunity and challenge in 1990 is to get more visibility as a company, since we do sell through others and don't do much direct selling, if any, ourselves. Our name isn't that common, because we don't have our sales force calling on end users. We sell through hardware companies or VARs or retailers. Our challenge is to get better known. I think that'll be our challenge as a marketing organization, to ensure that when somebody says, "I'm going to look at software," whether it's a desktop or a server or a database, or tools to write applications around, the question will be, "Have you talked to Informix?" When that is kind of a standard issue, we'll know we've succeeded.

Because our products are very technical, they're good for the heavy technical people; they're easy to understand, and are very productive, and can save companies lots of money, and so from the standpoint of somebody running the company it's easy to understand. The relationships we have—if you want to deal with the largest computer companies like HP or AT&T or DEC or the large ones in Europe, we have relationships with those. So it's not like we're out there by ourselves; we have very, very visible partners.

But '90's going to culminate all the efforts of '89. We've got great products ready to ship, we've got great people, we've got great relationships in the sense of people helping us sell our products, and '90 will be the real year.

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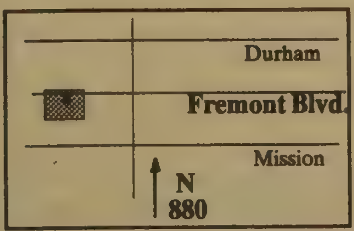

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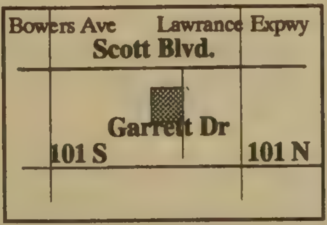

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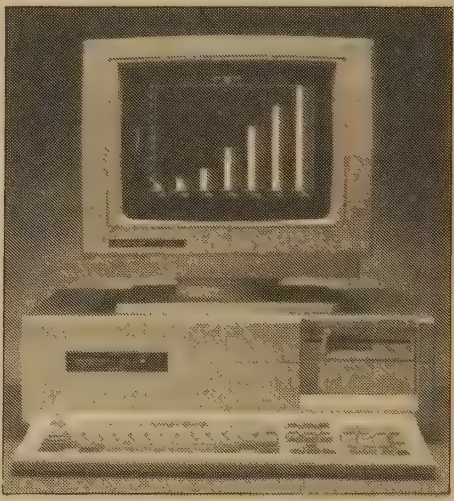

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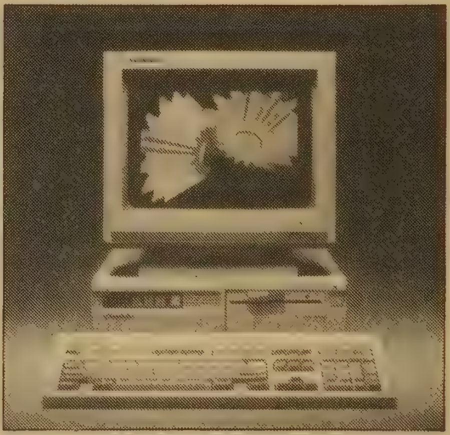

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Phillip White:

came a reality, is how well-qualified the conventional dealer channel is to sell UNIX. How do you plan to address that problem?

I think what'll make the dealers successful are applications that mask all the complexity in UNIX. Because UNIX in and by itself is not an easy-to-use operating environment.

The beauty of UNIX is that it runs on every architecture, so whether it's an Intel or Motorola or RISC or uniprocessor or parallel processor, it runs on all of them. Where other systems like OS/2 and DOS don't. The success of UNIX will be how good these interfaces are—Motif and NeXTStep and Open Look, and how many applications packages we can put under there so people don't have to worry about "It's UNIX!"

To the extent we make all that successful and available, then retail's a viable channel. To the extent we don't, I think retail won't be a viable channel.

Now Steve Jobs is the first to really put UNIX in retail. He's got a great easy-to-use interface, but he has no applications. Businessland will sell his machines to big corporate MIS environments who are doing development, but for somebody like us to walk off the street and buy a NeXT computer and take it home and do something with it requires applications, and people like us are going to have to help Steve get those applications on his machines. I think if we do that, anybody can sell UNIX.

OS/2 is as big and as complicated as UNIX. It just has a lot of applications from the DOS world, and to the extent we can get those same people writing applications for UNIX, because they can then enhance their opportunity because UNIX runs on any kind of hardware platform. Steve and Scott [McNealy] and any manufacturer that uses UNIX systems will have another channel open to them to sell systems.

Are the majority of your sales in UNIX? Or do you break down your sales by operating system?

No, we break it down by product category. A third of our business is database, and a large percentage of that is UNIX. A third is tools, and a large percentage of that is UNIX. A third is office automation, and that's broken up about 60% DOS with Smart and 30% Mac with Wingz. This year that'll start to change more dramatically as we put Wingz across a lot of other platforms, put our database on OS/2—the numbers will start to get a little muddier.

Do you envision broadening even further and getting into things like word processors and other applications?

Probably not. To the extent that office automation can be a front end and a tool to a database, we will have office automation packages. To have a text processor to go compete against Microsoft Word or somebody, that's really not our game.

Our game is to tie the products together. To the extent that a word processor would want to take a picture of our multimedia database, and embed it in a letter, a text processor would be good—another front end, if you will. Or to the extent you do free text search—80% of the data in a company is text, not numbers. Our database will be addressing that environment, and to the extent that a word processor will be pulling free text things and putting them in letters, over time you'll probably see office automation products as a front end to our database, not as a standalone product.

Do you think OS/2 is ultimately going to beat out UNIX?

Not in '90. In '91, because of the amount of DOS applications, OS/2 has a great opportunity.

There are two weaknesses in OS/2. One, it only runs on Intel platforms. Secondly, it doesn't exercise disks as well as UNIX does, so you can't get as much performance out of it. I think those'll all be fixed, and changed.

It really depends, I think, on how much UNIX can take advantage of the window in 1990. If a lot of customers decide that they're going to put in UNIX platforms because they can migrate applications across a lot of different architectures, and a lot of our VARs start to write more and more applications on UNIX, and DOS VARs migrate to UNIX, then UNIX will outdo OS/2 in the '90s. If not...

Is SCO part of that strategy?

Oh, sure. I think UNIX today ships more licenses on PC platforms than OS/2 does. And I think it will throughout 1990.

It really gets down to how many applications can we get as an industry around UNIX, because I think UNIX is better than OS/2 in the sense it gives customers a lot of flexibility and freedom. You like Sun today, and if somebody announces something better tomorrow, you can migrate your applications over. That's not true of OS/2. If you like Intel, you've got to stay with Intel forever, no matter what happens in other environments. I think customers would like the flexibility of migrating around, given that applications are the most expensive part of the data processing industry, and hardware isn't. If hardware gets faster and lower-priced, you'd like to move to it and move your application with it. That's the beauty of UNIX today, not OS/2. ■

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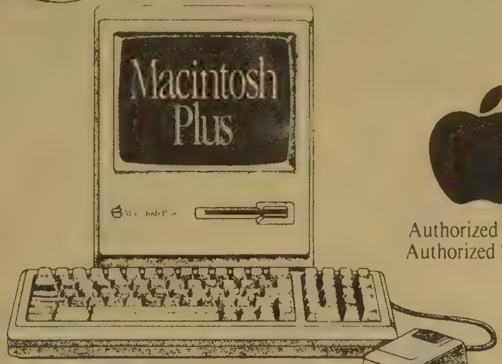

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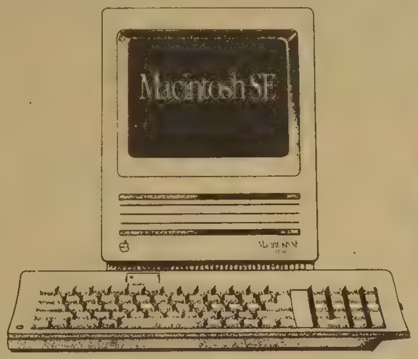

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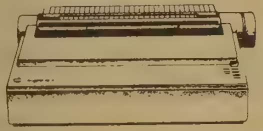

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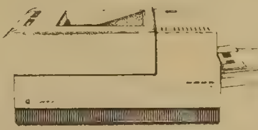

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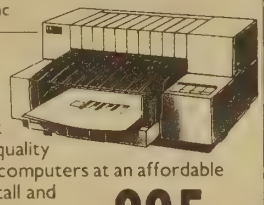

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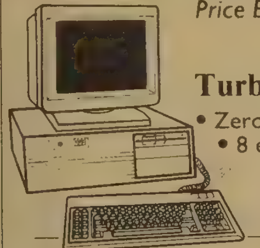

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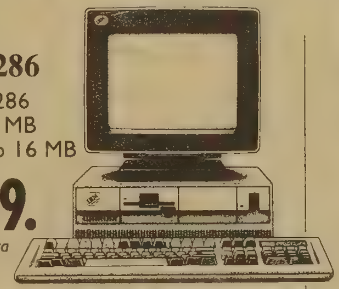

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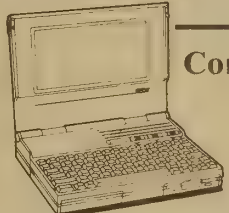

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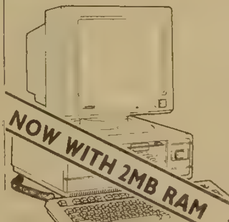

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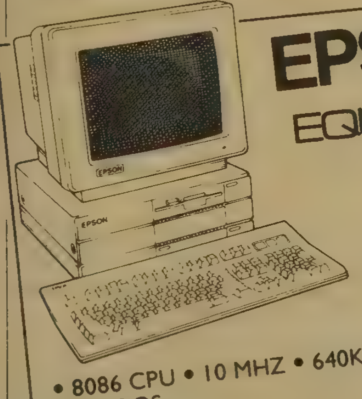

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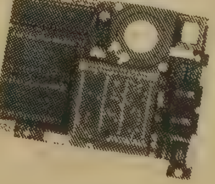

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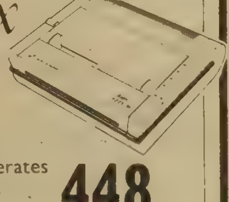

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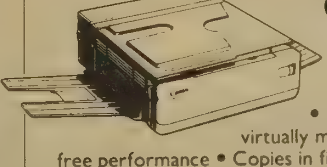

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Roger Sippl:

continued from page 48

for a product on a microcomputer versus a few hundred thousand dollars for a product on a mainframe—there wasn't much of a packaged software market for minicomputers.

Trying to figure out how to do software licensing for minicomputers where the marketplace is different, the price points are different, you have different kinds of customers, value-added resellers, end users, you also have hundreds of people buying copies—it was a bit of a study to figure out how to do packaged software marketing and licensing in the minicomputer market.

At what point did micros start seeming like a viable platform from your standpoint?

Since we built our product to run production-caliber databases, and thus we built it for larger machines than the original PC, it wasn't until IBM came out with the XT, which had a ten-megabyte hard disk drive on it, that our products were really viable for the PC. Now, of course, since they all have hard disk drives, our products are extremely viable for all classes of PCs that are currently being sold. But at the time, the 256 K/two-floppy drive machine, which was the Cadillac PC at the time—even that wasn't really quite big enough to take advantage of the product we were selling, which was the Informix product from the UNIX minicomputer, ported down to PC.

> "The merging of the database world and the office automation world is, I think, long overdue. It's always been a bit of a mystery to me how those worlds got so separate and stayed so separate for so long."

The most important aspect of the PCs now is when people use them networked into minicomputers and use the PCs as an intelligent terminal.

Obviously the acquisition of Innovative Software had a lot of strategic importance for Informix, and we're starting to see its importance with the Wingz product. At the same time, those products seem pretty alien to what you were doing at the time. What led you in that direction?

Well, actually, if you went through the microcomputer boom along with me as my career developed from the late '70s, it wouldn't strike you as being such a leap, such a big gap between the PC office automation/personal productivity product-type world and the database-type product world.

The early days of microcomputers brought us the first really usable sorts of graphics products to draw business graphs, and I always felt that those products should be interfaced to a database as an additional report writer. If you look at our original product specification that I dug out the other day for our ten-year anniversary party—it was dated March 1980, and it doesn't say "spreadsheets," because spreadsheets didn't exist then, but it describes the interface of descriptive statistics packages, which are business graphics packages, with the database, so that people can use those products to pull data out of the database and draw graphs and produce printed presentations, as an auxiliary report writer.

Report writers were really the most important class, the early class of fourth generation languages for computer databases. Most fourth generation languages started off as query languages and then grew to report writers and then became full-fledged world class programming languages, like Informix 4GL.

But I always knew that people's strongest desire was for consolidating the information into a consumable format.

Raw data is only so useful...

Right. People don't put the data in computers just to have it sit there; they want to take it out and analyze it. And the more ways you can analyze the data, the more intelligence you can derive from that data, or the more useful information you can turn it into.

So I always knew that the marketplace for tools to turn raw data into useful information was really limitless; it was only limited by the imagination of the tool designer for building an analytical process to draw that

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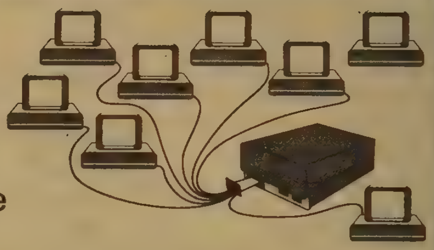

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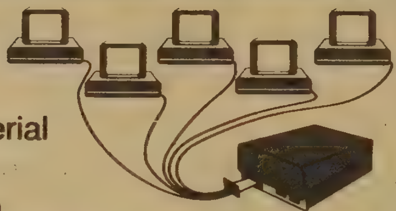

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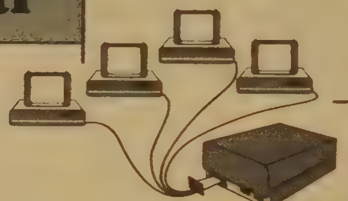

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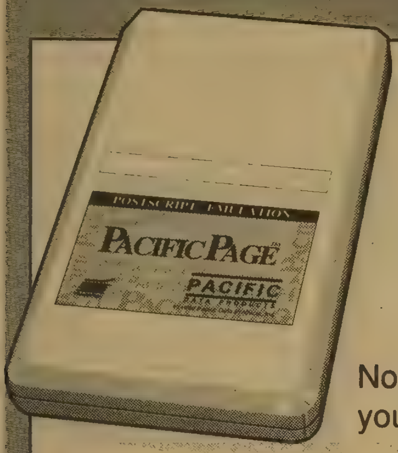

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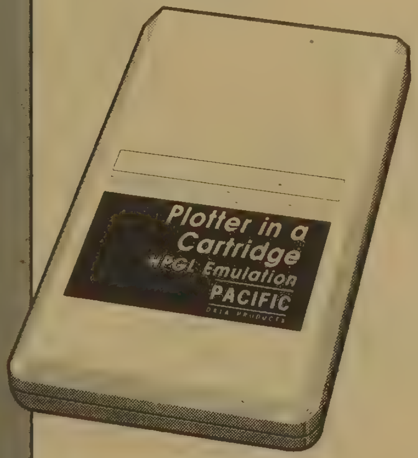

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data out and provide useful information. I knew back then that any product that could analyze information, if that could be interfaced to draw the information out of a very large database, draw some subset out, it would be usable as a report-writing tool—if you will, as a presentation and data analysis tool.

The other things that were actually in that plan that we're now getting to ten years later were the ability to store chunks of data in the database as a database field, what we now call a BLOB of data—Binary Large Object Byte storage, the BLOBs of data that we now can store in the Informix-OnLine database engine. I was real pleased when I reread that specification from ten years ago, that some of those major features that I always wanted, we are now able to produce.

It *is* interesting, though, that the spreadsheet leaped into a whole new product category. That was something I didn't foresee at the time. In that original specification I do discuss the integration of text editors with the database engine, and the ability to be able to store large chunks of text in a database, and store and retrieve it using a text editor. But I didn't exactly foresee the product definition of a spreadsheet.

Not even Visicalc existed at that point?

Not that I know of. It might have been just starting out. In the early days of microcomputing—people probably don't remember this too well—you actually used a terminal, a minicomputer terminal, and that had a wire that ran at a baud rate that connected you to the personal computer. So the CP/M computer did not have a built-in bitmapped graphic tube hooked to it; it wasn't really until the IBM PC was invented—people built some of these things on the very early Apples, but the IBM PC really opened the market for high volume software that utilized a built-in bitmapped graphic tube. So it was tough to do a spreadsheet—it's hard to make a spreadsheet work when you have to pass all the characters over a fixed baud rate line.

So how did Innovative Software come to your attention—you just happened to be in Lenexa one day and ran into them?

(Laughs) No, we had been looking for those products that were part of our original plan, that we wanted to bring to our customers as additional ways to build applications that provided more useful information than our competitors' tools allowed.

Our fourth generation languages are the best for building transaction processing style applications, but we wanted to go further—we wanted to give people the best tools for adding decision support-type data analysis to those transaction processing-type applications.

Also, we wanted to be able to provide people with very friendly windowed human interfaces as part of our fourth generation language tools, when they're operating in an environment where there's a PC on the user's desk and a minicomputer networked to that PC. The minicomputer has the data, but we want to use the PC as a high-bandwidth, very friendly human interface device.

So we felt that we had to get into the office automation business in order to have those word processors and text management tools and spreadsheets and business graphics and presentation graphics products, so that we could integrate those products with our database engine so that whole line of capability could be usable by people to analyze, present, store and retrieve all kinds of data.

The merging of the database world and the office automation world is, I think, long overdue. It's always been a bit of a mystery to me how those worlds got so separate and stayed so separate for so long. Right now if you have database data, like someone's name and address, you store that in a database and you can find it very easily and quickly. Anyone else in the company can find it very quickly and easily. They can search for the person's address by their last name or their company name or customer number, and it happens very fast because those are indexed fields. So even if you have hundreds of thousands of names in the database, the fields are indexed, and you find it very quickly.

On the other hand, a contract you might have with that person—that's very difficult to find. People don't store that in a database. You don't have the context of those fields to search for with, and it's not stored in an indexed data structure where you can search through hundreds of thousands of them and find the exact one you're looking for right away.

It seems to me that there's two worlds that are very separated—when you store that contract in the computer, you store it in the file system, and the model of data storage in the file system is caveman-like compared to the sophisticated model of storing database records in the database. When you store something in the file system, you're only allowed to give it maybe eight characters of context, give it a filename. And if you can't find it and recognize it for what it is by looking at that filename, you're not going to find it. Plus you have to visually, manually, scan every filename, looking for what you're looking for.

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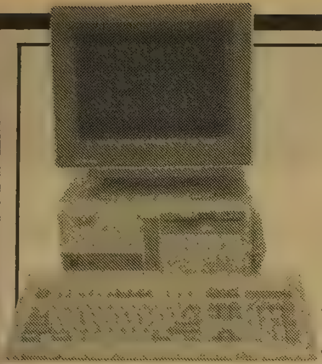

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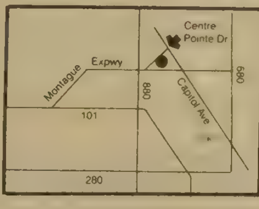

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Roger Sippl:

Either that or get closely acquainted with grep really fast...

(Laughs) Right, or run some sort of utility. But in the database world, if you told people you had to run a program to do a linear search through every record to find the one you wanted, you would say, "Well, I'm not going to sit here and wait for a linear search; I want some indexes on this database." People started demanding indexes on databases and data in the 1960s. But when you store thousands of contracts in a file system, for some reason people are willing to either look through it manually by eye, or have a utility do a linear search, or departmentalize all your contracts into different directories based on the day of the week or the week of the year or the alphabet.

It's a very strange dichotomy to me, the world of database data that's indexed in a very sophisticated data storage structure, and the world of office automation type data, which is stored in a very elementary, difficult-to-store-and-retrieve, difficult-to-find-things structure. And so I think that as we now enter the world where people can get information into computers, a lot more easily—faxes are coming directly into computers, pieces of electronic mail are coming to people, people are scanning in documents with scanners because they can now print them out with laser printers. Disks are getting much higher-capacity and much cheaper, memory's getting much cheaper and much higher-capacity, processors are getting faster.

What this means is that people are going to be putting a lot more information into computers. Particularly with the optical disk, huge amounts of data are going to be stored into computers that are these BLOBs of data. Faxes or contracts or letters or memos or prospectuses or documents describing a new product, marketing plans—all these things are going to be stored on the disk drives of the computer, and people aren't going to be able to find it, because they're not storing this data in a database—it's not stored in an organized fashion.

So if I was a Fortune 500 company, and I was the legal department, and I was putting together a computer system for all the contract administrators to edit contracts, store and retrieve contracts, I would insist that the MIS department purchase a database system that is capable of storing and retrieving those contracts in an organized fashion. I'd make them put those contracts into a database where there's other fields in the database, such as the date it's created, the contract administrator's name, the customer's name, the customer number, and relate that table through that customer number to the accounts receivable tables, and to the order tables, so you can ask questions like, "Find me the contracts that were signed in the first quarter of 1986 that are associated with companies that owe us more than half a million dollars." That's a query that needs to be answered, even though the object you're looking for is a contract.

If that were the address of a company, you can answer that query today, but for some reason the address of a company is a much higher-class citizen than the contract with that company, and that makes no sense to me. So Informix-OnLine, with its BLOBs capability, and our integration with our office automation tools, I think will be the first time that anyone's addressing a solution to that problem.

Is that real now?

Informix-Online is being ported right now to the several hundred UNIX machines that our products run on. That has the ability to store and retrieve those BLOBs of data.

BLOBs of data is a somewhat new concept to me. Basically, anything that's digitizable can be handled in that manner?

That's right. Satellite data, video, or word processor files. Or a spreadsheet. If you think about it, it's just indefinite-length things. How big is a spreadsheet? Well, I don't know—it depends on how big I made the spreadsheet. How big is that business graph? I don't know—it depends on how much stuff I put in it. How big is that contract? Well, it might be two pages, it might be a hundred pages. So it's an indefinite-length-sized object. That's what we call a BLOB.

With database fields, you usually have to say, "This field is 30 characters. It's going to have the person's last name in it. And this field is 40 characters, and it's going to have the company name in it." So in databases you usually have to deal with fixed-length fields and store them in fixed-length records. Some databases have the ability to have what's called "varchars," but usually those are limited in size to 32 K bytes, 64 K bytes. To really be useful, you have to implement them as we've implemented our BLOBs, so they can be up to gigabytes big.

Especially when you're digitizing and scanning in documents, and trying to compress them down, sometimes they compress to under 64 K, sometimes they don't, and so you just need a field that will not only store a very large object, but you need a database engine that will perform well when it's storing and retrieving those sizes of objects.

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Roger Sippl:

What kind of real-world applications do you see for this sort of thing? You've got things like NeXT email, where you can send PostScript graphics and musical pieces and voicemail and text as part of the same document, for instance, but there's a big "Yeah, but what good is it?" issue.

Sure. Something that might not be well understood about me and some of my ideas is that I'm actually the most pragmatic guy in Silicon Valley. If I come out with a new product, it's very unlikely that this is a toy or just something that's cute. When you market such products, sure, you always demonstrate it with the real estate database with the full-motion video in it, to open people's imaginations to what can be done. But this ability to put BLOBs in a database is, I think, very fundamental in data processing.

We can go back to any application that I ever built in my life—we can go back to the first major application I worked on at Bechtel.

I don't know if you saw the movie *The China Syndrome*. There was a scene in there that was very similar to the database that I worked on. There was a suspected crack in one of the pumps, and so they wanted to find the X-ray of the pump, and they wanted to find the design drawing of the pump and its housing. So they went to a computer database and looked up where that design drawing was stored. So in that database it said, "Design drawing is stored in the vault in Oakland; it's in drawer #12; it's on microfiche sheet 48 in frame 12C." And that frame of that microfiche in that drawer in that vault is the design drawing.

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That's right. And that's exactly the point, that mostly what people store in databases are references to real-world objects that they want to keep track of. They store a reference to a purchase order. They store a reference to an invoice. They store a reference to a design drawing, a reference to a contract.

Usually the databases are built to keep track of something. Now some of these things the databases are built to keep track of are not digitizable, like trucks, or employees, so you can't store a truck or an employee in a database. But very often databases are built to keep track of things that people would store in the database if they could. My bet is that over half of the databases that are built have inside them a reference to something, and if they could have stored that something in the database, they would have digitized it and stored it in the database.

But they couldn't do that in the past, mostly because they didn't have laser printers and bitmapped high-resolution tubes and networks and client-server architectures.

So in other words, Bechtel would've preferred to build that database so that when the person goes looking for that design drawing, when they say, "Okay, it was the fourth submittal of the design drawing from General Electric that was submitted in either June or July of 1976," they wanted the database to come back and say, "Well, there's two records that meet those criteria." "All right, let me see that first design drawing," and up comes a window and in that window is the design drawing. And you look at that one and say, "No, that's not the one, let me see the next one," and up comes another window; that *is* the design drawing you're looking for.

If at that time, when we built that application at Bechtel, if we would've had a fourth generation language that could build that windowed human interface application, and we had a database engine that could store and retrieve those BLOBs, that's how we would've built that application. And then people would've gotten immediate visualization of the object they're looking for, not visualization of the microfiche sheet in which vault, but the actual object they're looking for.

When I gave this speech to our sales force about a year ago when I told them we were working on this technology, my wife was in the audience. She was a banker for ten years, and she used the database of loan agreements. But the loan agreements were not stored in the database. She said that it would've saved the bank on the order of hundreds of thousands of dollars a year in people-time, and probably on the order of millions of dollars a year in loans they would not have had to write off, because they would've been able to stay on top of the delinquent loans more efficiently, and would've been able to collect monies when money was available to be collected, if they could have gotten their hands on the documents pertaining to that case in a more timely fashion.

When people think of the paperless office revolution, they think, "Oh, that'll be great, that means we won't have to chop down as many trees." I'd like to think that'll be the driving force, but it won't be. The driving force will be the timeliness of getting your hands on the information itself. That will be the driving force in the paperless office.

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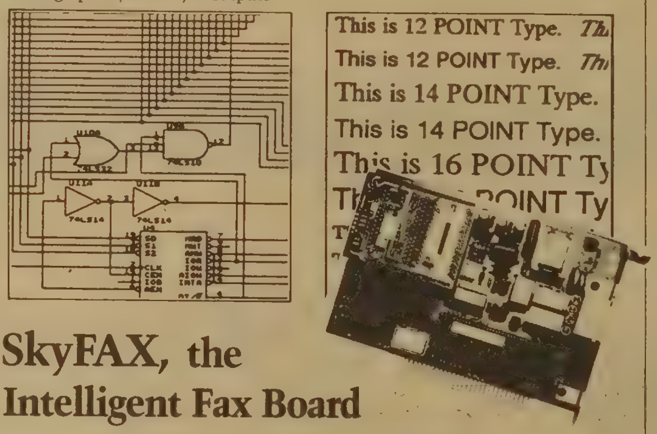

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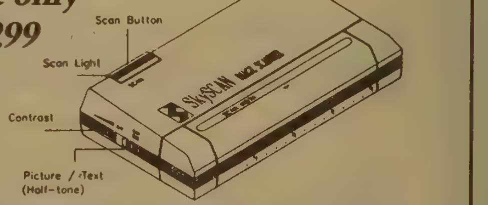

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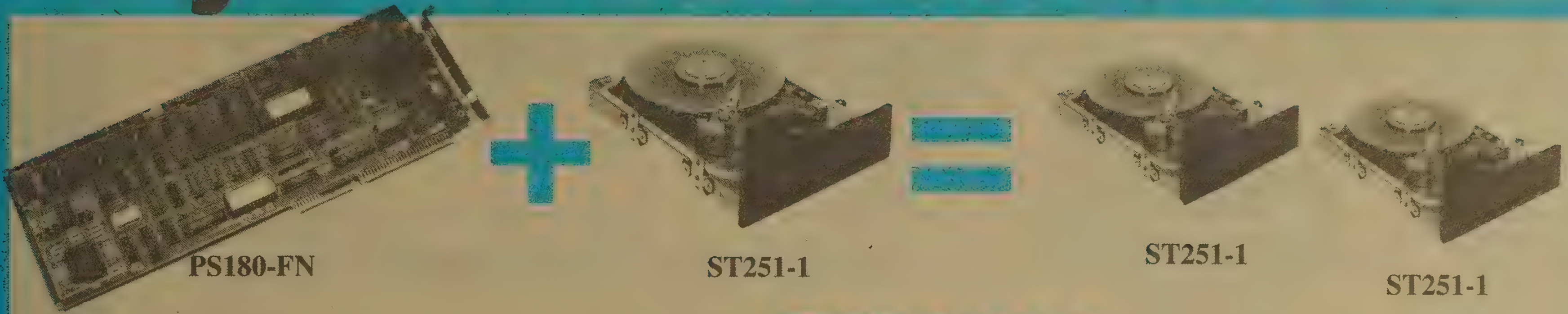

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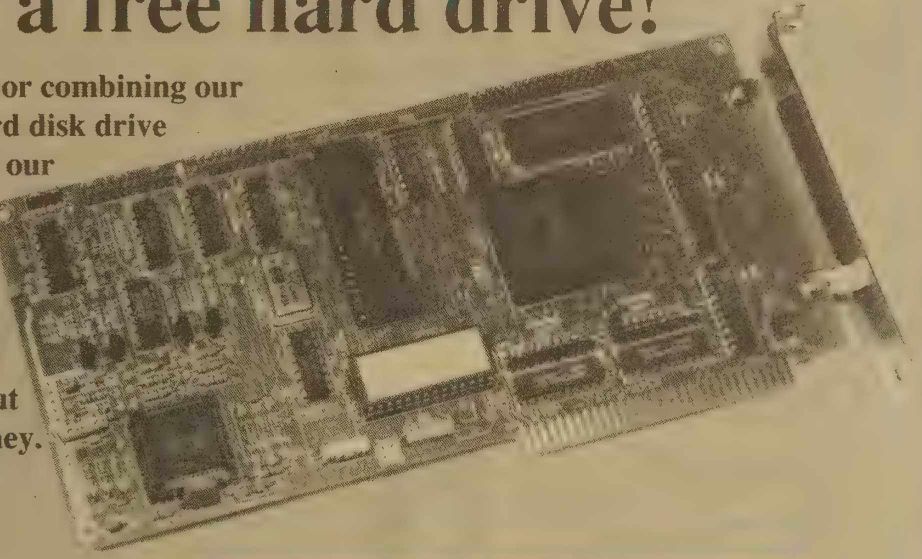

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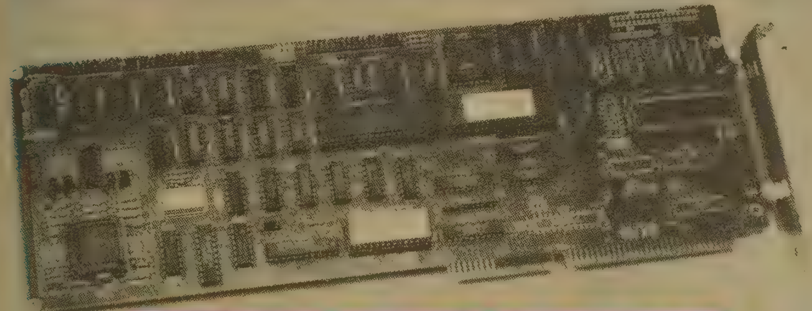

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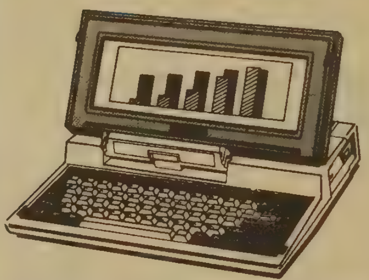

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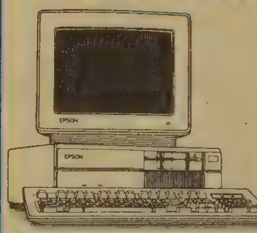

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And the ability to store new classes of information objects online—that's why we call it Informix-OnLine, because we're emphasizing the fact that no longer do you have to search some geography to find the piece of information you're looking for. Everything you always wanted to be on line now is. The fact that it's on line and shareable in a multiuser database format with indexes for fast searching, and that large capacity database operates at very high transactions-per-second speeds—all those features, I think, are the beginning of a new revolution in information management, where people can store and retrieve much more information—all the information that they ever wanted to.

What would you like software to be able to do that it can't do yet?

(long pause)

You can extend it to hardware/software combos if you want...

(Laughs) You know, it's funny, because whenever new hardware technologies get developed, I always love to get my hands on them, because after a few days my mind starts dreaming up what this new hardware enables to happen. It takes us, the software industry, quite a while to build that software that's enabled by that new hardware.

So I wish we could've had Informix-OnLine and our fourth generation language interfaced to this BLOBs capability as soon as laser printers came into existence, because that was really the gating factor in this technology. It didn't do you much good to scan a document into a database if you couldn't reproduce that document in printed form, if you did have to put it in paper mail or bring it and hand it to somebody or produce it in court—until laser printers came out. That was really the missing link. There's really several technologies that you need—laser printers, the PC with the high bitmapped resolution workstation, high capacity magnetic disks or optical disks, high speed networks—but all those hardware technologies taken together give us an opportunity to produce this new breed of software.

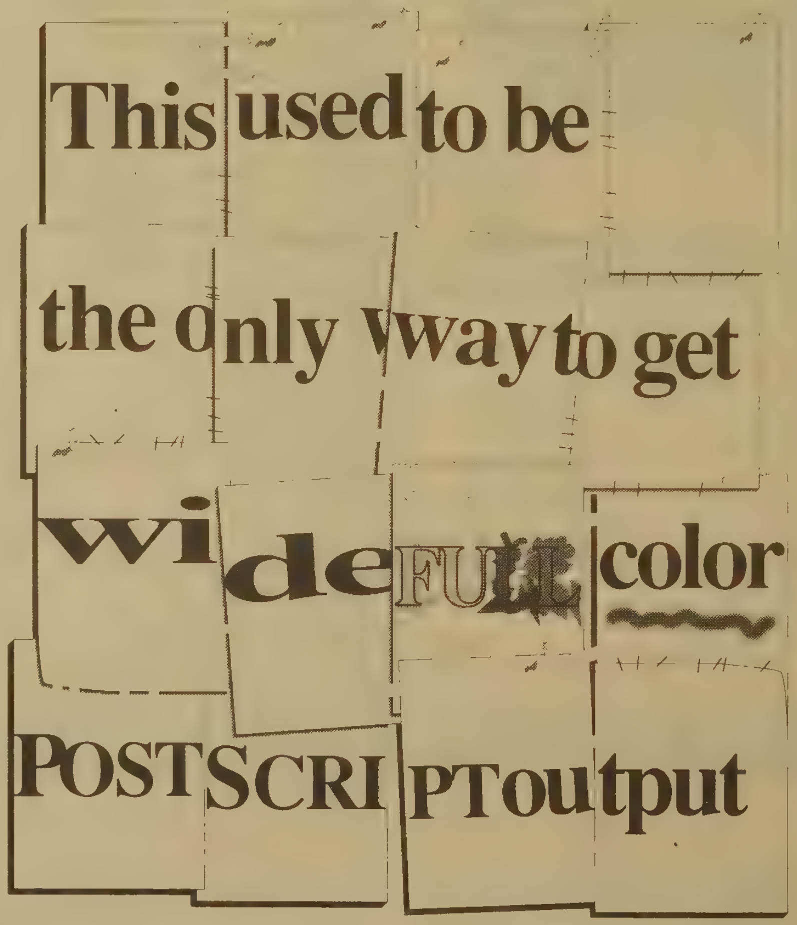
So you ask me what would I like software to be able to do that it can't do right now—we're right at the beginning of being able to make any piece of information that's digitizable immediately available on line. We have a whole product line—Informix-OnLine is just the beginning—that will make that information instantly available to people.

I wish we had all of the tools that we're currently building available immediately. Right now we have the database engine, our Informix 4GL language, and our embedded SQL for C tool, to allow people to build applications to store and retrieve these BLOBs. And that's the bulk of what people are going to want in order to build these multimedia databases and store the data itself, instead of just references to it.

I wish we also had free text search as part of our database capabilities, and we're working on that. That'll be in some future release, but I think it's very important that when people store text, as one of the BLOBs in the database, that they can not only use SQL style searches on the database fields, but also be able to use free text search. You should be able to say, "Find me the contracts that were written in the first quarter of 1986, that the company owes us more than half a million dollars and the contract itself contains the phrase, 'General Electric' within a paragraph with the phrase 'fuel pump.'" That's adding in a free text search element to that SQL-style search. That's never been done before, and I expect that we'll be the first to integrate that into the actual SQL product.

And window tools. Certainly Wingz integrated with the database provides the best combination of data presentation capability with database storage and retrieval capability that's ever been put together, and we're very proud of that. But we are also continuing to work on more application development tools for even more sophisticated transaction-processing windowed applications.

So the products that we're bringing to market today are the first opportunity the world has to put any type of object they want to in a database and build applications that deal with those objects. And I challenge the application developers of the world to use their imaginations to take a look at every new application with a different frame of mind. Whenever you see a reference to an information object put into a database, ask yourself if you couldn't replace that reference with the actual piece of information itself, and make that piece of information online and immediately available to the user. ■



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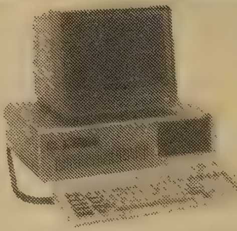

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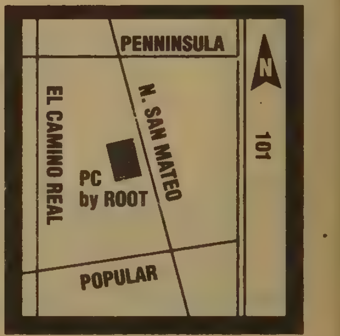

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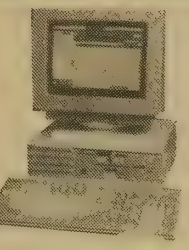

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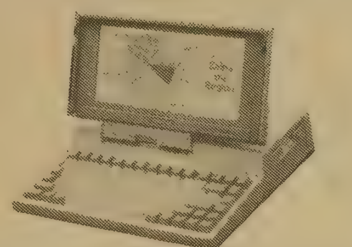

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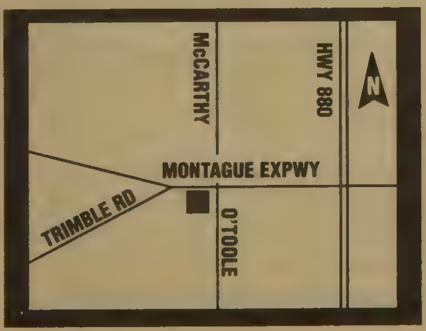

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Safe Computing For The '90s

A Chiropractor Explains How To Avoid Carpal Tunnel Syndrome And Other Repetitive-Stress Problems

By
Dr. Ronald
F. Harwin

Carpal tunnel syndrome and tendonitis are quickly growing into the major health concerns of serious computer users. Why is this incidence of computer-related injuries growing so rapidly?

A healthy work relationship between human and computer requires a correct interface. If you ignore the body's innate format of mind-body interaction, you can expect injury. I personally believe that we tend to ignore this crucial relatonship because we become swept away by the sense of power today's computers give us.

Carpal tunnel syndrome is defined in *Dorland's Medical Dictionary* as "pain and burning or tingling paresthesias (abnormal sensation), in the fingers and hand, sometimes extending to the elbow, due to compression of the median nerve in the carpal tunnel [a small tunnel located in the wrist just below the thumb]." CTS can also lead to partial paralysis of the hand and deterioration of the large muscle at the base of the thumb (atrophy of the thenar).

Today, carpal tunnel syndrome and tendonitis are names often given to problems not well understood. In my experience as a doctor, they always develop from a preexisting postural strain and bio-mechanical imbalance.

Traditionally, care has consisted of immobilization, steroid injection to stimulate tissue healing, and surgery. These are treatments for the symptoms, but I find it essential, when treating a patient with one of these problems, to work with the entire functional pattern involved.

Workstation ergonomics are clearly a part of the solution, but without the correct interface programmed into one's work style, the most appropriately designed furniture and equipment in the industry will not be able to prevent today's growing epidemic of injured computer workers.

Microtrauma

Microtrauma is a very small trauma or injury to a body part caused by its improper use. Over several years it can grow into a serious health problem.

I know how I feel when I finally get up after working hours at my computer, not to mention the sleep I sometimes lose from working late. I feel stiff, tired and sometimes even depressed. There are biological and physiological reasons for this, and if you ignore these warning signs you

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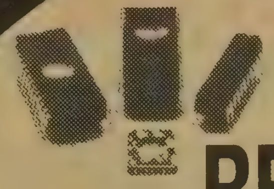

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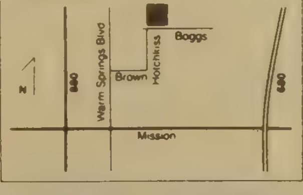

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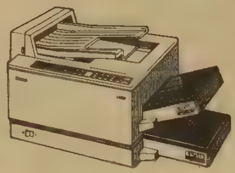

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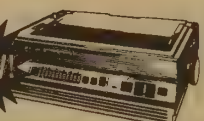

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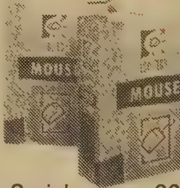

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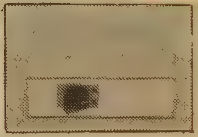

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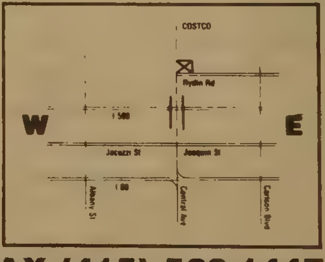

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- Landmark=34.5, SI=28 w/memory interleave
- 1 32-bit, 5 16-bit, and 2 8-bit slots
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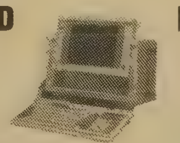

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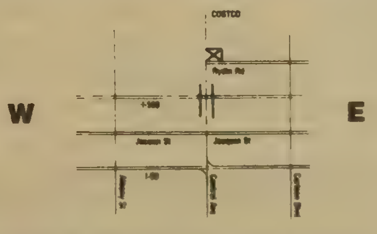

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can end up with a serious injury.

With intense computer use, a certain amount of microtrauma or cumulative stress is unavoidable. But the body is a high performance tool and it requires regular maintenance to continue functioning at a high level. The key to dealing with this lies in your understanding of the problem, but you will also need to change your work posture and do some exercises.

Work Posture And Its Effects

Let's begin by becoming aware of how you work, something most people don't do during their entire careers. Take a moment and look around the room at how your co-workers are using their bodies. If you work alone, position a mirror to your side so you can see how you work.

Chances are you'll find yourself slouched forward in your chair with your chest collapsed, shoulders rolled in, your neck and head projected forward, and your feet in any number of positions.

After you get over the initial shock of seeing how you are using your body, you will begin to notice that you focus primarily on one thing, the computer screen.

Working in a forward slouched position, so characteristic of the computer user, is a major contributor to health problems. The head weighs 12 to 18 pounds, and when it leans forward for hours at a time, the muscles between your shoulders lock in contraction to hold your head up. This causes compression and decreases the blood flow in this area, resulting in injury to the tissues. They become inflamed and irritate the nerves controlling arm and hand coordination, which weakens the functional strength and coordination of the arm. This creates a vulnerability to carpal tunnel syndrome, tendonitis, and other repetitive stress injuries.

How To Avoid Repetitive Stress Injuries

Your chair seat should be in such a position that your knees are slightly lower than your seat; it should be close enough to your desk that you don't have to lean forward to work.

Your desktop should be just high enough for your knees to comfortably fit underneath. A too-high desk forces you to hold your shoulders up all day, which is very stressful to shoulder, arm and neck muscles. Do not lean on your elbows when you type; this is also injurious.

Beware of typing with your wrists resting on your table or the bottom of your keyboard—a practice which is very common and even encouraged by the design of some keyboards. This position is injurious to your wrists and hands because the muscles that work your fingers are mostly in your forearm, and they have to reach your fingers by long tendons, which function like pulley ropes. When you type with your wrists resting below the height at which your fingers work, you put a lot of strain on these tendons, because the pulley ropes working your fingers have to go around a corner to do their work. Your arms and hands should work together in almost a straight line, with the hands slightly lower than the arms. (This is a simplification of the problem.)

Your keyboard should be approximately 12" directly in front of you so you can sit comfortably with your shoulders and back relaxed. Whenever possible, use a detached keyboard so you can move its position easily to fit your needs. Locate your monitor about 18" in front of you, preferably slightly below eye level so you can look at it with your head level and your eyes in a comfortable, slightly downcast angle. This will help reduce eye and neck strain.

When you're typing from printed material, it will save your neck some extra work if the page you're reading is attached to a stand at the same level as your screen, and fairly close to it. This will keep your head from having to bob up and down.

Breathing

Many of us are breath holders, especially at work, and this makes our breathing shallow. By doing this, you decrease the amount of oxygen available to your brain, which causes you to feel tired and diminishes your productivity.

> **The muscles that work your fingers are mostly in your forearm, and they have to reach your fingers by long tendons, which function like pulley ropes. When you type with your wrists resting below the height at which your fingers work, you put a lot of strain on these tendons, because the pulley ropes working your fingers have to go around a corner to do their work.**

More Exercises For Healthy Computing

Neck, Shoulders, Head

1. Massage the muscles on the back and sides of your neck.

2. Massage the small muscles at the bottom of your skull and the very top of your neck.

3. Gently roll your head and neck in as wide a circle as possible, feeling the weight of your head gently stretching your neck as you do this. If you come to a sore area, go more slowly.

4. Rotate both shoulders in a full circle, four times in one direction and four times in the other.

5. Shoulder shrugs: While inhaling, pull your shoulders up towards your ears. Allow them to fall as you exhale.

6. Position one arm in front of you, palm down and parallel to the floor. With your other hand, gently pull the fingers of the first hand back toward your head. This will stretch the hand and arm muscles that get tight when you type all day.

7. Let your arms fall to your sides. As you inhale, visualize gathering up all your tensions. As you exhale, feel the weight of your arms dropping toward the floor and the tension running out your fingertips. Be sure to sit upright—no slouching.

8. With shoulders relaxed, gently shake out your hands.

Lower Back

1. Sitting up with both feet flat on the floor, push your feet firmly into the ground. Feel how this causes your back to straighten. Doing this with gentle pressure throughout the day will help you to be more alert when you are feeling fatigued. Be sure to keep your buttocks relaxed as you push with your feet.

2. While you are working, imagine there is a string at the top of our head pulling you upward, like a puppet. This will help you sit up, and therefore reduce the strain on your back and neck.

3. Sit on the edge of your chair after you have pushed it back from your desk. Straighten one leg in front of you with your toes pointing toward the ceiling. Keeping your back straight, bend forward over your extended leg. You should feel a pull behind your leg and sometimes in your hip and lower back. Do both legs.

4. Whenever possible, get up and walk around. Intentionally relax your legs, buttocks, shoulders, eyes, and, of course, your breathing.

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The eyes are the most overworked part of your body. When they are stuck in a two-dimensional seeing pattern, they tend to pull the head into a forward-leaning posture.

Working slouched forward, your lungs must push against the pressure of your collapsed chest every time you take a breath. This is very hard work for your body, and over a long time your breathing muscles become habituated to this and limit our ability to breathe.

It is important to keep your breathing full and relaxed throughout the day. These exercises can help. They work best when done for a few minutes every hour.

1. With your fingertips, massage between your ribs, especially near the breastplate (sternum) and under the collarbone (clavicle). Also massage the pectoral muscles of your upper chest, softening these rigid muscles where they attach into the shoulder.
2. Massage above the collarbone from the center of your neck toward the shoulders. This may well be painful, but it is very important. These muscles are chronically tense in CTS, and they lock your head in the forward leaning position.
3. Occasionally take a deep breath; exhale slowly and gently.

Eyes

Eye movement, with its accommodation to distance and light, is controlled by small muscles with can become as tense as any part of your body.

Biologically, eyes are designed to see three-dimensionally, at varying distances, both in front of you and peripherally. When you read print for hours a day, they become habituated to seeing two-dimensionally. To counteract this:

1. Relax and soft-focus your eyes, making sure you see three-dimensionally, during breaks, momentarily when you are working, and especially when you are off.
2. With your eyes, reach for the farthest distance you can see.
3. Soften your visual focus. Notice shapes, outlines, and colors at your terminal and around the room.
4. Quickly alternate between seeing a distant object and a close one.
5. Visually trace an infinity pattern, in one direction and then the other. Keep your head still and move only your eyes.
6. With your head still, trace diagonals. Look from the upper left corner of your field of vision to the lower right corner, then return. Do this several times in both directions.
7. With your fingertips, massage around your eyes.
8. Raise and lower your eyebrows several times, moving them as high and as low as they will go.

The eyes are the most overworked part of your body. When they are stuck in a two-dimensional seeing pattern, they tend to pull the head into a forward-leaning posture.

Jaw

It is common for people to unknowingly clench their jaw in response to the pressures of work and life in general. Jaw clenching causes our neck and shoulders to be tight, and can lead to headaches. It is directly influenced by your emotions, and can be a tenacious problem. To reduce jaw clenching, try this.

1. With your fingertips, deeply massage the jaw muscles (masseters) that are located one inch forward and one inch down from the bottom of your ear. This may be painful, but the benefits are worth it.
2. Massage the temporal muscles on the sides of the forehead.
3. Relax the lower jaw (mandible). The way to do this is by feeling its weight pulling down.

General Comments

Some of the patterns you will be working on have been with you for many years. Be patient. I have seen amazing changes occur with a little bit of regular work.

A little prevention can go a long way toward keeping you healthy. ■

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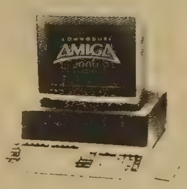

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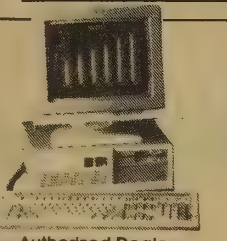

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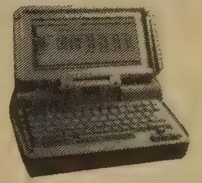

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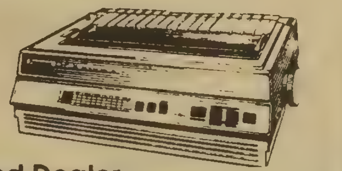

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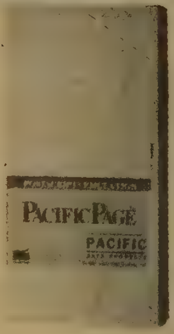

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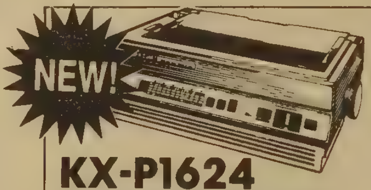

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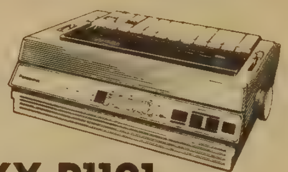

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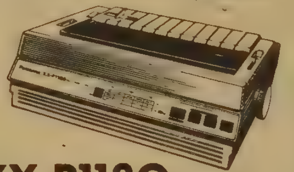

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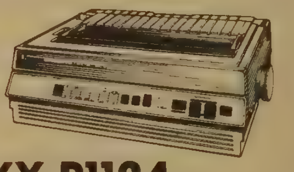

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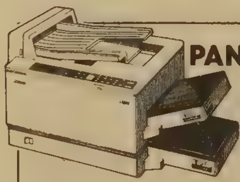

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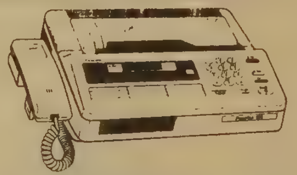

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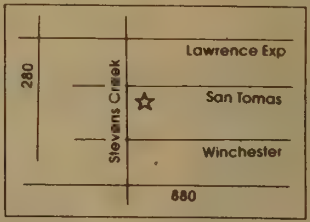

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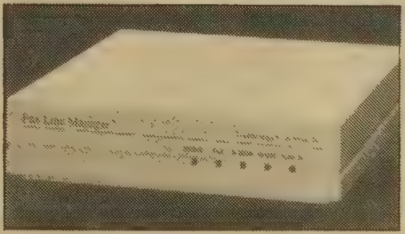

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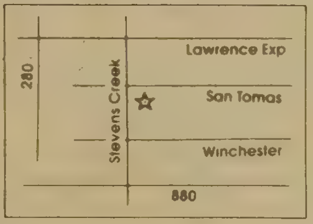


Computers & You

New Center Provides Computer Skills For The Disadvantaged

By Tony Rocco

Had magazine publisher David Bunnell not been so intimidated by the prospect of debating Apple's charismatic Jean-Louis Gassée, he might never have discovered the facts that helped propel him to start Computers & You, a pioneering computer learning center for disadvantaged urban kids and adults in San Francisco's seedy Tenderloin district.

To avoid the painful fate of losing to executive Gassée in a formal debate at Stewart Alsop's computer conference a few years ago, Bunnell prepared his argument with extra thoroughness. His assigned position: That personal computer technology is *not* making the world a more democratic place. The former publisher of *PC World* and *Macworld* magazines was shocked by what his research showed him.

"The facts and figures say that the number of computers is far, far greater in suburban schools than in urban schools," Bunnell says. "Middle class kids have access to computers at home and at school. Poorer kids don't. The computer is helping to broaden the gap between the haves and have-nots."

And his audience agreed. Although it wasn't official, Bunnell is sure he won the debate. "Judging from the applause, I won," Bunnell boasts.

Whether you agree with Bunnell's conclusions or not, it would be hard to find fault with what he has done on the sixth floor of Glide Memorial Church. He has helped conceive and create Computers & You, a non-profit computer learning center for disadvantaged urban youths as well as adults who are down on their luck or recovering from drug addiction or alcoholism. Computers & You has received a quarter of a million dollars in donated equipment, books, and software from computer companies including Apple, T/Maker, Borland, Ashton-Tate, Activision, Brøderbund, and Adobe. In addition, many industry notables have given their time to the learning center, including Adobe's John Warnock and Paperback Software's Adam Osborne.

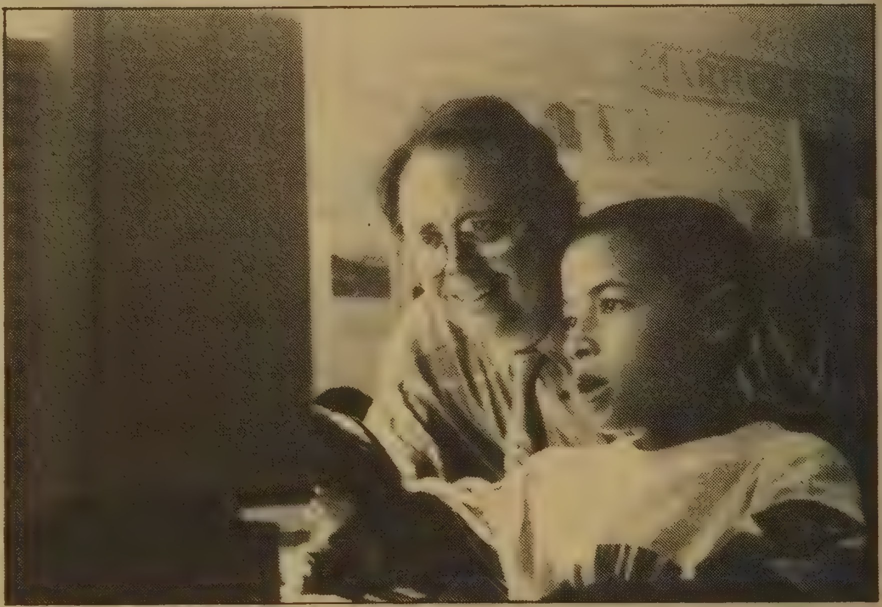
This support demonstrates that the popular belief "that people in the computer industry are not generous, they're not involved, they don't care about anything except making money, building companies, and stuff like that" is not true. "My experience with this program has been exactly the opposite," Bunnell states.

It all started when Bunnell, a longtime Glide patron, and International Data Group's chairman Pat McGovern approached the famed Reverend Cecil Williams in June of 1988 about starting a computer learning center. They found Williams was not only interested in the idea, but the entire sixth floor of his Tenderloin building was available for use.

McGovern, Bunnell, and their respective companies then pitched in $100,000 to get the project started. Bunnell, being well-connected in the microcomputer industry, was successful in getting donations of computer hardware and software as well as texts and instructional manuals. After remodeling the space on the sixth floor and soliciting volunteers to teach classes and help set up and maintain the equipment, Computers & You opened in January 1989.

Today Computers & You teaches about 300 students per quarter the basics of using Macintosh, Apple II, and PC-compatible personal computers. Children and adults who have a demonstrable need can enroll in classes on basic computer literacy, word processing, spreadsheets, desktop publishing, and even MIDI. Bunnell hopes that his learning center is just the start of a national and even international chain of Computers & You's.

"I'd like Computers & You to be a national program. I would like to have another center in East Palo Alto. I would like to see it in every ghetto in America, and eventually in other countries as well. We hopefully can create a program that has a proven track record and prove that our students have success and that we're creating productive members of society. One of my hopes is that some day we will be able to say that a president of IBM got his start at Computers & You."


Publisher David Bunnell joins in computer exploration with a student at Computers & You.

Whether any of tomorrow's industry leaders get their start at Computers & You remains to be seen, but the learning center is definitely having a positive impact on people's lives. Kids who come from troubled homes in which fathers and mothers may be alcoholic or drug addicted are starting as early as age two learning how to use a computer. Among the children attending Glide, the dropout rate is almost zero, Bunnell reports. Dropouts among adult learners are more common, however—about a third of the students.

While teaching computer literacy skills is of prime importance at Computers & You, the program there also addresses the overall needs of the individual. A formerly addicted, homeless, or alcoholic person lacks more than just employable skills; he or she also needs appropriate "soft skills" like how to write a resume, how to present oneself in an interview, how to behave in an office environment, and how to get ahead. While an individual may have been quite skilled at dealing with a street environment, those skills don't transfer to the straight, workaday world.

"To be effective and successful in the office environment, you have to be able to deal with the environment, with people—how to dress right, how to deal with co-workers, how to deal with bosses, how to promote yourself, how to advance. So we want to teach people those skills too. This is much more than computer skills," Bunnell explains.

The next step for Computers & You is to offer adult students a way to get their feet wet in the new world of office employment before being plunged into a full-time job. Once having taught the computer skills needed to find a job, Computers & You will find temporary work for its students through a new agency called Tenderloin Temps. This temporary employment agency is slated for operation sometime later this year, as soon as the money is available.

And money, Bunnell would like it to be known, is what Computers & You is in greatest need of right now. While volunteers and donations have been quite forthcoming, money has been a harder nut to crack.

Say Bunnell, "We basically can get hardware and software donations, we can get volunteers to help us teach. But to make this all work, we have to have a full-time staff. And we have certain expenses we have to meet, and that requires money."

Plans are in the works to get corporations to sponsor students at a cost of $5,000 a year. "For $5,000 you can sponsor a student for a whole year and pay for all their classes and all the support. You get reports on how they're doing, and hopefully companies will get really involved with some students to the point where they might even hire them and have them work part-time. We think that that's a really good way to get companies to feel that their money is being used well and that they're being a participant in something very constructive."

If you or your company would like to help improve the lives of disadvantaged children and adults with a donation of time, equipment, or money, contact David Autor, Computers & You, 330 Ellis St., San Francisco, CA 94102, (415)922-7593. ■

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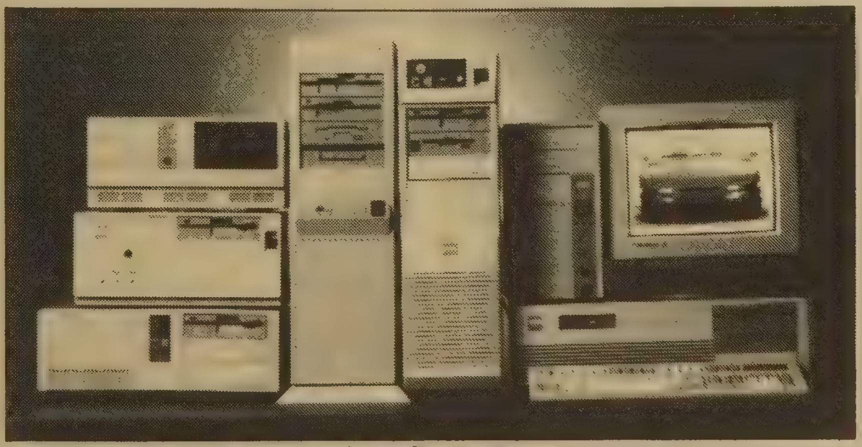

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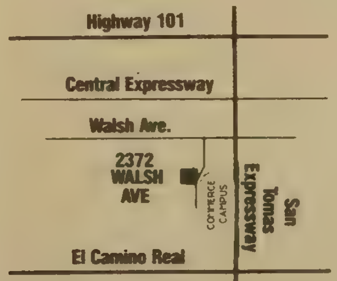

Object-Oriented Programming Systems, And How They Work

By Birrell Walsh

This season's computer buzzword is "Object-Oriented Programming Systems." Microsoft has committed itself to object-oriented systems for future versions of Windows and Presentation Manager. Apple has settled on C++, an object-oriented version of C, for version 7 of the Macintosh operating system.

So what is all the fuss about, and should you be concerned? If you want to try out an object-oriented language, where do you begin? This month we will take a look at the concepts of object-oriented systems. Next month we will examine some of the languages which use those concepts.

What Are OOPS?

An object-oriented programming system is entirely a convenience for the programmer. It has no hardware speed advantage. In considering an object-based system, you should consider it as a programmer's tool.

The line of development which began in "structured programming" is continued in "object-oriented programming." Data is more hidden, code is re-used more efficiently through inheritance, and similar functions can have identical names. Groups of programmers can work on projects as a team, knowing only the messages to which other objects will respond. They do not need to know how those responses work. Data security and "function security" are enhanced.

Object Systems: Three Characteristics

In a "pure" object system, an object hides information so that you won't accidentally change it or misuse it somewhere else. The information in an object is hidden from outsiders, even from other objects. You can only access it from inside the object. That hiding is called sometimes called "encapsulation."

Encapsulation certainly increases security of information, but it leaves you wondering: How do you *use* the information which is hidden this way? You have the object itself tell you what is inside. Each object not only includes data, it also includes functions which live inside the object but can be called from outside.

If you have an object called "Point," it might have two pieces of data: X and Y, both integers. In that, it is like a record in C or Pascal. But it may also have functions to get the data from outside (perhaps called SetX() and SetY()), and functions to report the values (GetX and GetY). You probably have a function to show the point, and another to hide it.

The original object-oriented programs treated these functions as messages to which the object knew how to respond. You did not just say "SetX(55)," you said "StartingPoint SetX(55)." The object "StartingPoint" would then respond to the message. "StartingPoint Show" would make the StartingPoint's dot appear on the screen; "StartingPoint Hide" would make it disappear.

If you want your data sacrosanct, you can prevent changes by writing no functions which allow it to be changed. If you want it secret, you can write no functions which allow it to be read outside the object. It can still be used by methods internal to the object. Those private functions can handle all the necessary calculations behind a screen of security.

More and more programs are developed by committees. One programmer with an inspired pointer can wreak havoc in another division's code. Objects help a team of programmers to insulate various sections of the program from each other. The programmers can work separately, developing their parts of the program without worrying about unfortunate interactions.

Often you wish you could have a new object which shared all the characteristics of an object you have already created. You might have a Point object, which has X and Y coordinates and functions to change and reveal those values. Now you want a "rectangle" object, which has center coordinates, and also height and width. Do you have to create an object "Rectangle" and give it the X and Y coordinates, SetX() and SetY(), GetX and GetY? No, because objects can "inherit" the characteristics of other objects. You can define a "Rectangle" to be a kind of Point which also has dimensions.

This inheritance can go on for generations. For one application I created a class of objects called "Location" which had X and Y coordinates, and the SetX(), SetY(), GetX and GetY functions. Then I defined "Point" as a class that inherited from "Location," but it could be shown, hidden or moved. "Point" had one more variable inside, too: "Visible," which could be set to true or false—but only by the methods of the "Point" object. That way I could be sure no other function somewhere in the program would tamper with the value.

If you want your data sacrosanct, you can prevent changes by writing no functions which allow it to be changed. If you want it secret, you can write no functions which allow it to be read outside the object.

From "Point" I defined "Rectangle," a kind of point with dimensions. From "Rectangle" I defined other classes of objects, such a moving rectangle called a "Phage" which traveled around the screen and "ate" points. Each class of objects had functions and variables that its ancestors did not.

The line of descent from "Location" through "Point" to "Rectangle" and "Phage" is called a hierarchy. Much of object-oriented programming is a matter of defining your own hierarchies. You re-use the useful parts of simpler objects by making your complex objects their descen-

Books On Object-Oriented Programming

If you want to take a look at Object-Oriented Programming without buying a language, try some of the excellent books which are published on the topic.

I learned about C++ from *The Waite Group's C++ Programming* by John Berry (Howard Sams & Company, $24.95). It is a well-written introduction to the concept of objects, as well as to the standard object-oriented language in software houses. When you are starting with a subject, it is a blessing to read a graceful writer. Mr. Berry is such.

Osborne/McGraw-Hill has released *Using C++* (by Bruce Eckel, $24.95) which covers C++ version 2. It is a good first book on C++, and it explains C++ in the context of other languages.

Another classic in C++ is *The C++ Programming Language*, by Bjarne Stroustrup (Addison-Wesley). Dr. Stroustrup designed and implemented the C++ language at AT&T's Bell Labs. There should be a new version of this as the new definition of C++ settles in.

Andrew Shalit of Apple recommends *Object-Oriented Programming in Common Lisp*, by Sonya E. Keene (Addison Wesley). It explains the new Common Lisp Object System, which will be followed by a number of vendors.

Kurt Schmucker has written an excellent book, *Object-Oriented Programming for the Macintosh* (Hayden Books). It is now three years old, but it remains a very good introduction to objects in the Macintosh environment. It discusses various languages that have been created for the Mac, and tells you the questions you should ask of any object-oriented language.

—Birrell Walsh

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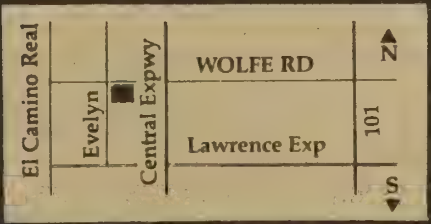

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You may have thought to yourself, "Wait a minute! The function that shows a Point won't work for a Rectangle. The 'show' function for a Point makes visible only one pixel. The 'show' function for a rectangle has to make a pattern of points visible."

Right you are. We have arrived at the third characteristic of object-oriented programming. The first two are data-hiding and inheritance. The third bears the lovely sobriquet "Polymorphism," which is Greek for "many-shaped-ness." When you send the command "show" to a point, a function is called that paints one dot. When you send the "show" command to a rectangle, a different function is called that paints several rows of dots on top of each other. The name is the same, but the response has many shapes—it's polymorphic. We are used to polymorphism in human language: you get a different response if you say "Duck" in a foxhole than if you say "Duck" in a French restaurant.

You can send a message to an object whose nature you don't know. It might be any of several related objects. If you have defined "Point" and a family of descendants "Rectangle," "Circle" and "Triangle," you can get any of them to paint itself with the command "show." Therefore, you do not need to know as you are programming which kind of object will receive the command. As long as you know that the object belongs to a class which knows how to "show" itself, you can let the issue of just which shape is shown wait until the program runs.

It is possible to design addition functions which add integers, real numbers or complex numbers, and to use the same "+" symbol for all of them. The ability to decide at run-time which function will be used is called "late-binding." Polymorphism makes possible this late-binding.

That is all there is to object-oriented programming: data-hiding, inheritance and polymorphism. How they are implemented gives the different languages their flavors.

The Future Of OOP

Objects are well adapted to inter-machine and parallel applications. In a very few years, we will see distributed objects. A program will generate an object, and send it encoded down the line to another machine. The object will "unfold" in the new environment and work—gathering data, servicing the software it is visiting, or bringing an update. It will function like a benevolent virus. Its task complete, the object will return to its parent machine, or be disposed of by its new host. At the same time, other objects will be working in parallel in as many contexts as are useful.

Objects will also be embedded in mobile hardware. Robots of various sizes will run programs which will be objects in a larger hardware/software system.

Since one object does not know how another functions, maintenance and development can proceed piecemeal. The entire program does not need to go down when one object needs to be rewritten. An object can simply declare itself "unavailable" while it is being updated or maintained. Systems will be able to keep working during repair.

Objects will be able to evolve more rapidly than whole systems. The same strategy was adopted by organic ecosystems: let the parts evolve separately and then interact. Object-oriented programming systems can develop faster than current systems.

There are two negative aspects to object systems, and they will increase in impact: the "object bureaucracy" and the "object zoo."

OOPS can lead to a focus on "interface standards" and "inter-process protocols" that stuns creativity. Object-oriented systems will permit the kind of bureaucratic separation of function that has paralyzed organizations. Objects, like people, will be able to say to each other "Have a seat" and "Not this department."

Secondly, a hierarchy of objects can be confusing. The "taxonomy" of your system will always be its most important design feature, and the place where the most confusion is possible. As objects become able to inherit from multiple parents, the situation will get worse. To prevent chaotic proliferation of object classes—the "object zoo"—programmers will have to exercise a great deal of restraint.

To plan for object-based systems that reach across several kinds of hardware, the OMG has been formed. The Object Management Group includes Gold Hill Computers, Data General, Hewlett-Packard, American Airlines, Canon (who own part of Steve Jobs's NeXT), Sun, Unisys, 3Com, Prime Computer, and Phillips International BV. The standards they set will permeate the industry.

These companies are meeting because they agree that the future belongs to object-oriented systems. Next month we will look at specific languages that use objects: C++, LISP, Smalltalk/v, and two versions of Pascal. ■

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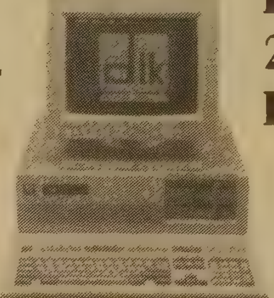

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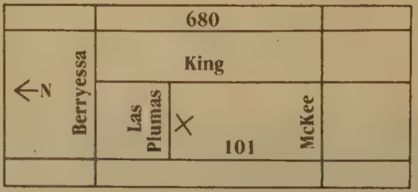

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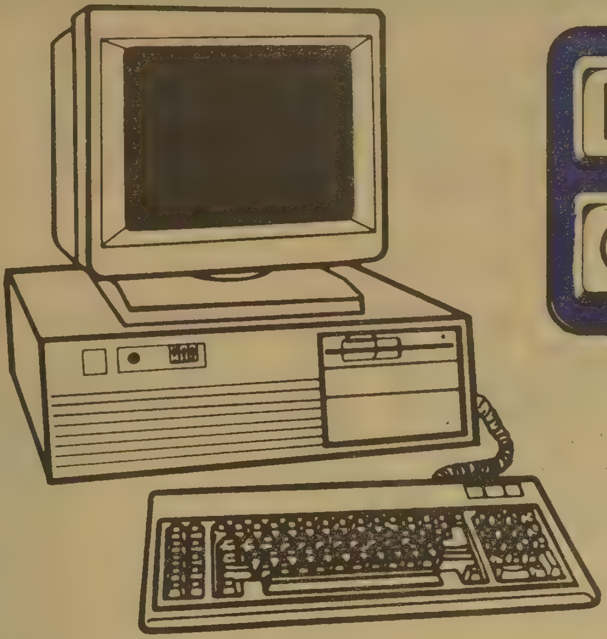

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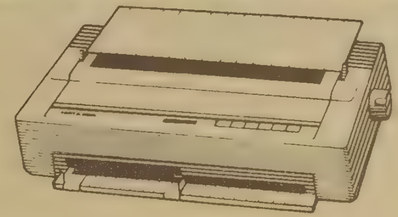

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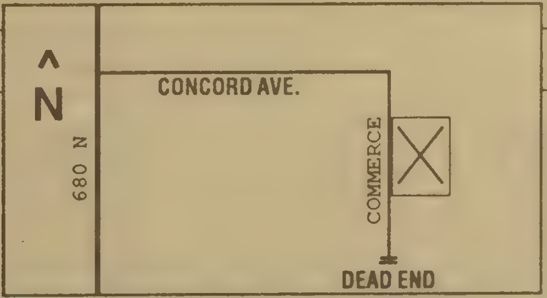

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The Sharp 5541

Expensive, But Worth It

By Ed Kahn

Last spring I attended the Portable '89 trade show and saw all of the new products from a number of hardware and software suppliers. It was clear that portables were moving towards 40 Mb hard disks and better displays. At that time, the machine I most wanted to get my hands on was the Sharp 5541, because it incorporated most of these new features.

It has taken me until now to be able to actually get a unit and work with it long enough to write a review. Despite the appearance of the machine at that show, it was not released until January of this year. The 5541 is no longer the only machine to offer these features; nevertheless, after working with it for a while, I still give it high marks.

Sharp came out with a whole line of new laptops, of which this is the flagship model. The array includes entry level machines as well as this high-end unit. The 5541 is powered by an 80286, which can run as fast as 12 MHz. The display is a paper-white VGA. Standard configuration includes a 40 Mb hard disk as well as a high density 1.44 Mb 3 1/2" floppy drive. Internal memory is 640 K, but can be increased by up to 3 Mb. It weighs 14 pounds.

Features

This machine is not inexpensive at a list price of $5595, but it does have all of the features most users want. The display offers a full 680 X 480 VGA emulation, with 16 levels of gray to distinguish colors. If you decide to use an external monitor, you can use any model you want. While there is full VGA emulation on the LCD that comes with the unit, a switch on the side lets you choose to use an external monitor. There are actually two ports for connecting a monitor, one of which is analog, allowing you to use either a multiscan or VGA display. I tried it with the Mitsubishi Diamond Scan ($899), which I have been using for the last few months, and found it offered a crisp image. In addition, there is a digital port for connection to CGA or EGA monitors.

Sharp is the first computer manufacturer that I know of that allows you a choice in the shape of the cursor. In the setup screen is an option that allows you to select the cursor shape: an underline, an underbar or a block. After fighting with so many computers on which you cannot find the cursor, this is a real pleasure. I hope other manufacturers will follow Sharp's lead.

This is a completely satisfactory computer. If it's in your price range you'll buy it if you try it.

The keyboard for the Sharp 5541 has a wonderful feel and adequate layout. There are a few keys I would have preferred to be placed elsewhere, but for the most part this is quibbling. My main objection to the keyboard is the inclusion of an "Fn" key, which you must use to hit Home, PgUp, PgDn and End, as well as several other frequently used keys. Very few portables have been able to overcome this problem to my satisfaction, but there have been layouts that did not force you to compromise in this way.

The saving grace in the Sharp's case is that you can connect an entire keyboard of your liking. This is worth lots to me, because I can use my favorite keyboard, Northgate's OmniKey Plus ($119), except when I am literally on the road, rather than at my destination or at home.

The keyboard port requires you to use a PS/2 compatible keyboard, but what would you expect with a computer that incorporates so many state-of-the-art features? In any case, I prefer this setup to ones where you can only add a numeric keypad. Nothing is as personal as taste in a keyboard. I recently showed a computer to a friend and commented that I hated the keyboard; he replied that he thought it was great. So there you go...

Options

Sharp offers a number of options, but strangely overlooks others. The most glaring oversight is that there is no provision for connecting an external disk drive. This is strange, since so much attention is otherwise given to adequate storage options with the huge hard disk and high density floppy drive. I know of no way to connect a 5 1/4" disk drive, although there are provisions for this on the less expensive models in this series.

Likewise, there is no way to connect a second 3 1/2" floppy drive. This is less necessary, because Sharp has set the computer up to accommodate a virtual drive—if you copy a disk from A: to B: drive, it will instruct you to remove the source disk and insert the target disk in the B: drive, thus fooling itself into thinking that it has two 3 1/2" drives.

In the internal memory department nothing except money stands in the way of expanding to a maximum of 3.6 Mb, which can be configured as either extended or expanded LIM 4.0 memory. The basic memory expansion card ($845) has one megabyte of memory. A 2 Mb module ($1,495) that fits onto the memory expansion card is available to take you up to the maximum configuration.

Sharp offers a pair of modems which require dealer installation. The

continued on page 96

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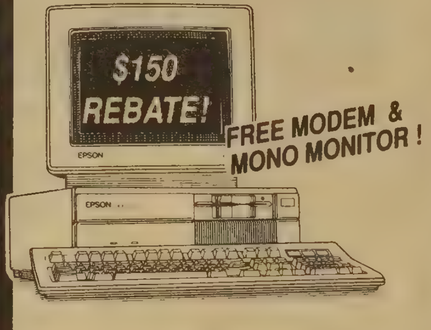
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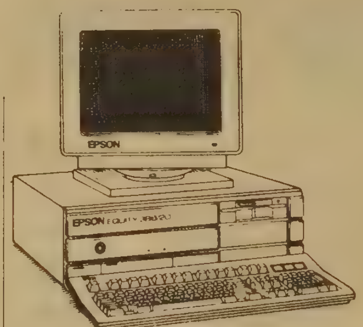

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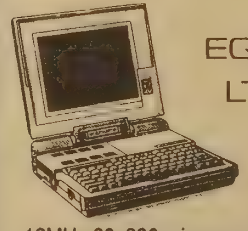

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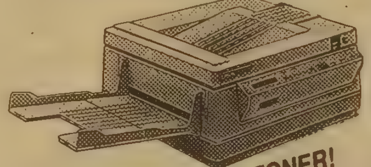

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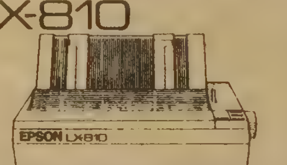

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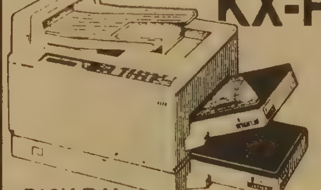

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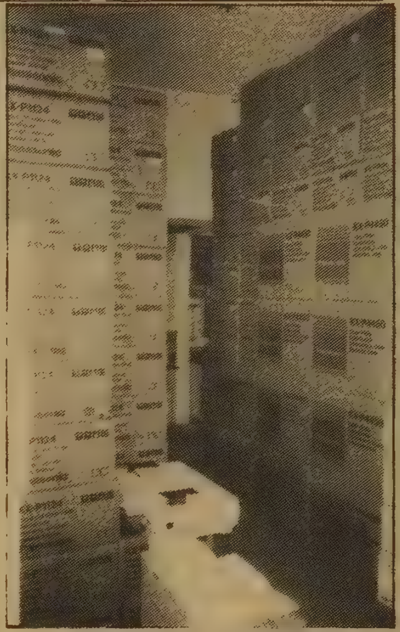

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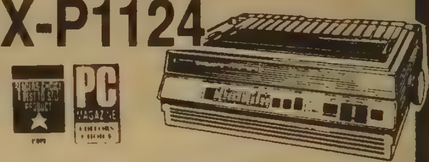

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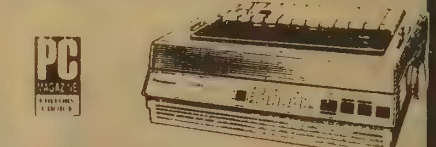

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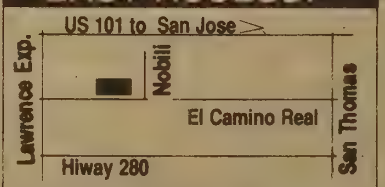

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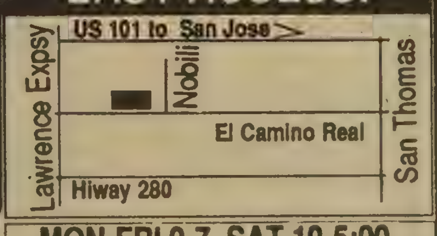

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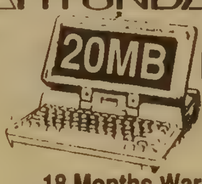

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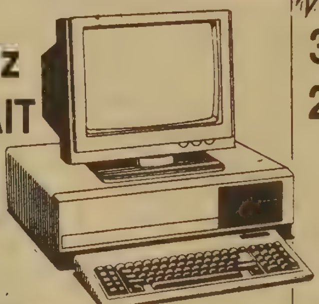

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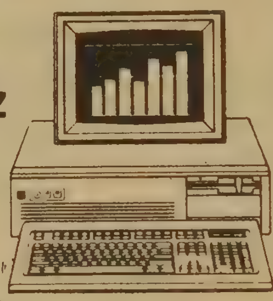

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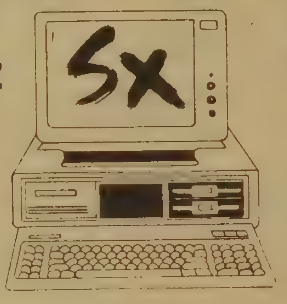

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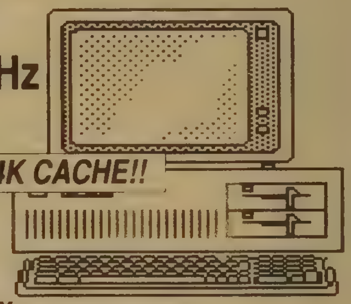

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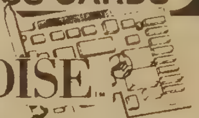

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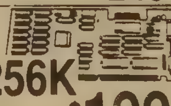

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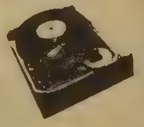

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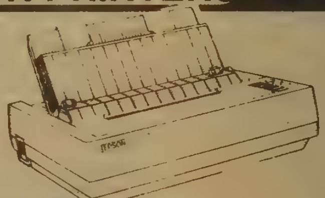

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LQ1050	264cps,88cpsLQ,136col	729
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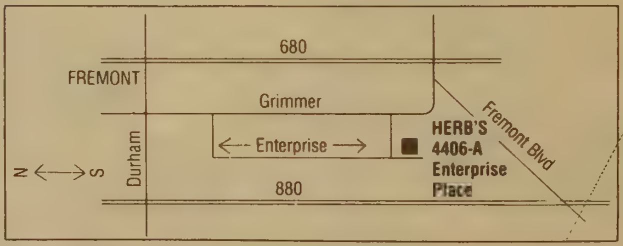

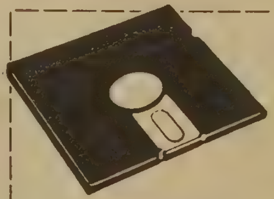

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continued from page 90

1200 baud model ($399) as well as the 2400 baud unit ($499) offer you the option of using the modem or switching the card to serve as a second serial port. The basic computer comes with only one serial port. If you do not want the internal modem, you can get a card that has a second serial port ($99) for a good deal less money. These Hayes compatible modems, neither of which I have tried, do not appear to have any special features such as data compression.

Battery Options

The included internal nickel-cadmium battery pack should last for about two hours with a maximum charge. The setup program includes a number of energy-saving features, which allow you to turn off the backlighting on the screen, as well as the motor for the hard disk after a user-selectable amount of idle time. While this is not as long a period of battery life as some of the other units, Sharp does offer an option of an additional "battery slice" ($399), as they like to refer to it in the documentation. With this add-on battery, which can be removed when not needed, battery operation can be extended up to more than five hours.

An AC adapter is, of course, included with the unit, and the batteries can charge while the unit is in use. Battery recharge time is a reasonable four hours, or five with the slice attached. The slice, by the way, can also be charged when it is disconnected from the computer.

In addition to these batteries, there is an internal battery that keeps the clock going and maintains memory for the setup configuration. This battery is charged either through the rechargeable battery or from the AC adapter whenever the computer is in use. If this battery, which only lasts for about three weeks if you don't use the machine, needs recharging, the instructions say to leave the computer on for about 50 hours. That is not a misprint.

Somehow this arrangement doesn't seem optimal to me. I think a lithium five-year battery or some other arrangement might be preferable. I feel nervous about a backup battery charge lasting only three weeks when you don't use the computer.

Documentation

The documentation for the 5541 is more than adequate. While it is simple enough for the beginner, it contains detailed instructions for the more advanced users. The introductory chapter is written for people with no background in computing and tells things like how storage works, what an operating system is and other useful information. As you move farther on, the instructions tell you how to do a low level format on the hard disk and configure it as two logical drives.

Fortunately this is not one of the overblown books that nobody can wade through. It is rather a bare bones manual that gives you enough detail, but not too much.

Etc.

The computer comes with MS-DOS 3.3 and GW-BASIC 3.2. It is interesting that even though Sharp included a 40 Mb hard disk, they stayed away from DOS 4.01, which would allow users to use the disk without partitioning it into two drives. While I like MS-DOS 4.01, I have found that it is incompatible with some of my favorite programs unless you request an updated version from the software manufacturer. Most vendors have made the slight changes to enable their programs to work perfectly with MS-DOS 4.01, but to avoid possible problems, Sharp was probably wise to stick with MS-DOS 3.3.

The line of accessories is rounded out by a choice of nylon ($99) or leather ($199) carrying cases.

This is a completely satisfactory computer. If it's in your price range you'll buy it if you try it. ■

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Resources:

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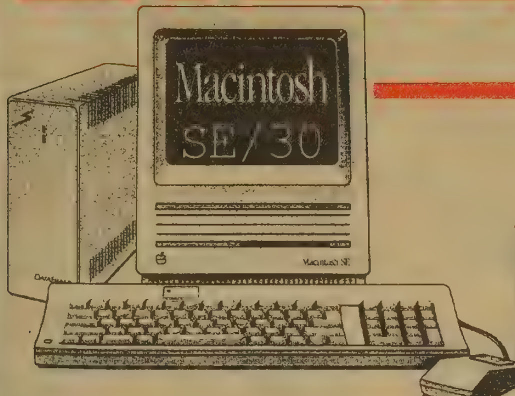

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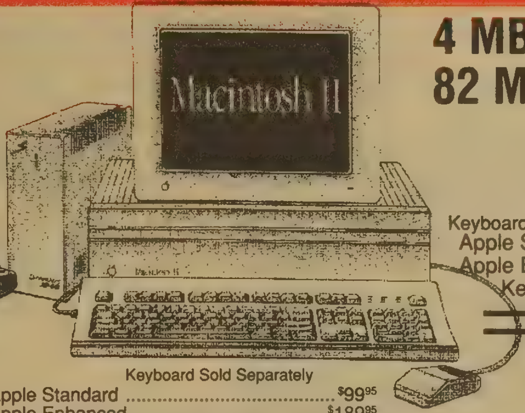

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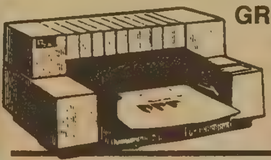

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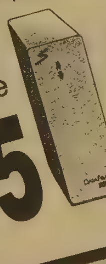

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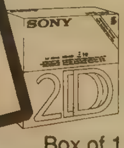

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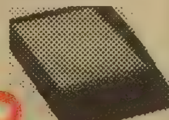

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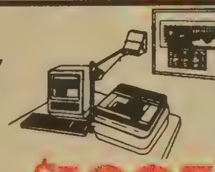

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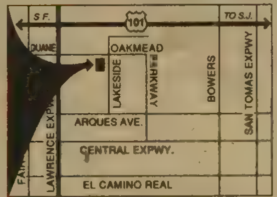

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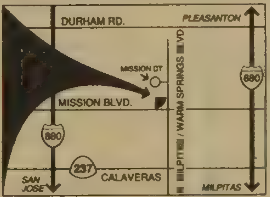

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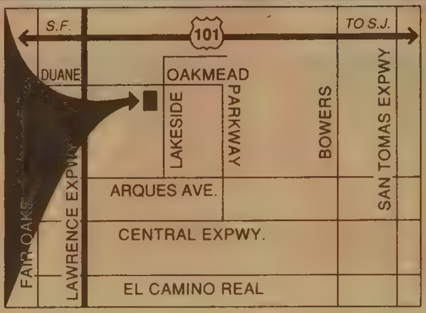

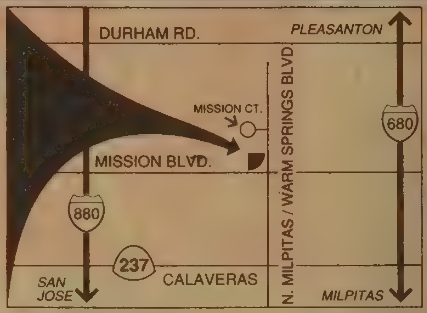

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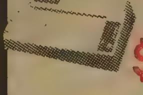

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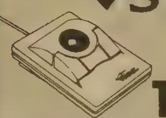

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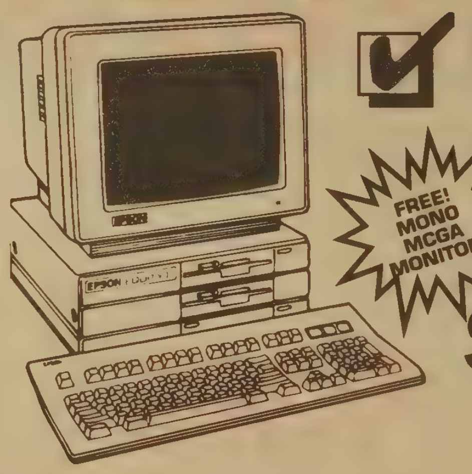

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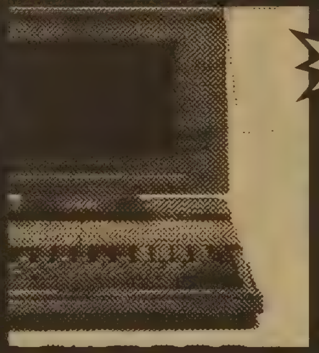

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24pin Printers x x x x x x x x x x x x x x x

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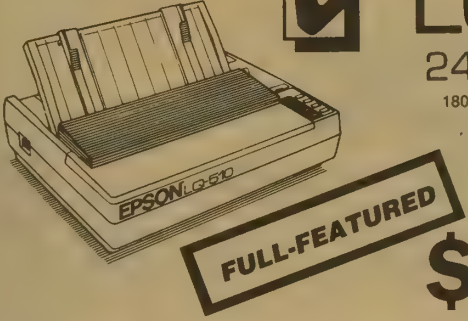
24 PIN PRINTER



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360x360 DPI Graphics
SelecType Control Panel
SmartPark Paper Handling
23x9 Character Matrix
Tractor Feed

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☑ LQ-1010

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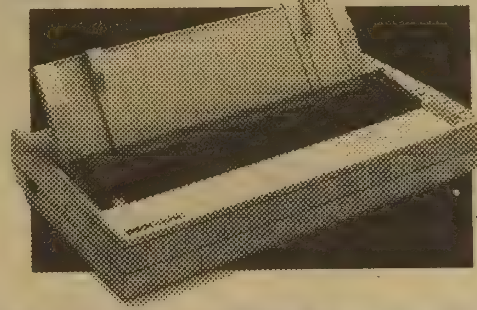

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☑ LQ-950

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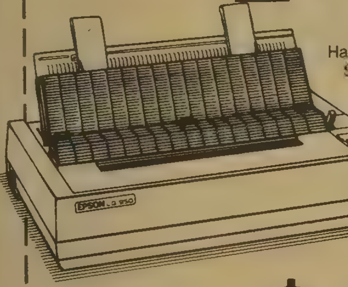

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SmartPark features let you switch paper formats without removing hardware or paper • Eliminate paper waste and accurately adjust top-of-form position. • Superb Letter Quality Resolution • 360x360 dpi resolution • Fast Performance
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88 CPS in Letter Quality Mode

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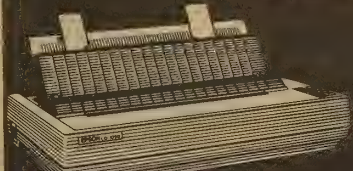

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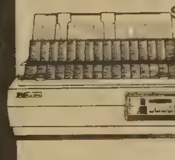

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Prints 400 CPS Draft
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9pin Printers x x x x x x x x x x x x x x x x x x

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Tractor Feed
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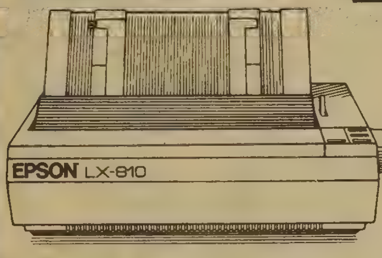

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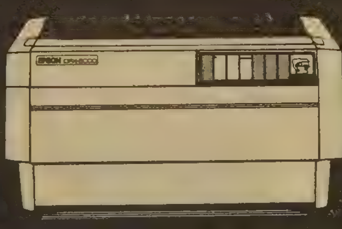

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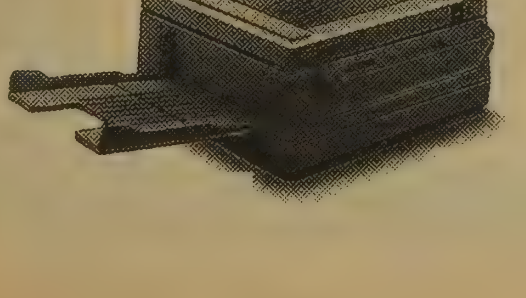

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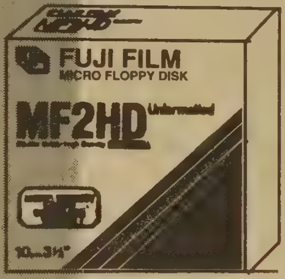

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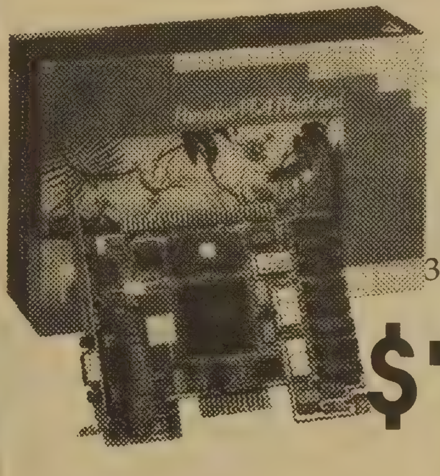

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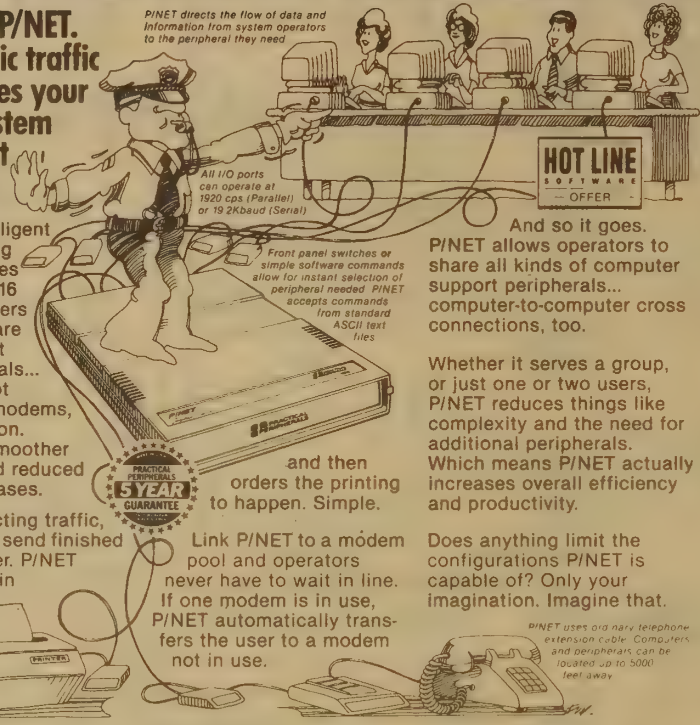
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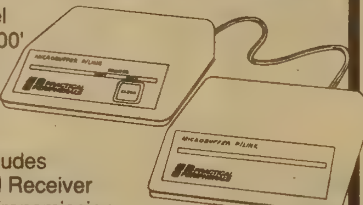

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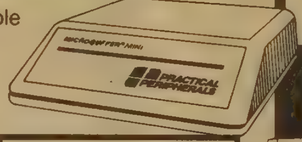

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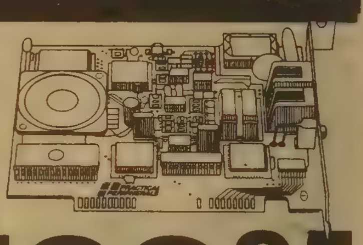

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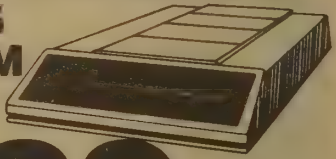

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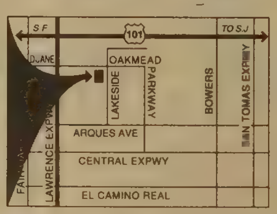

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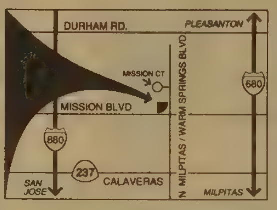

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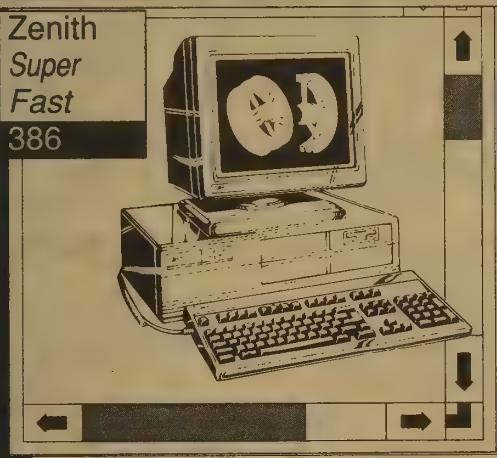

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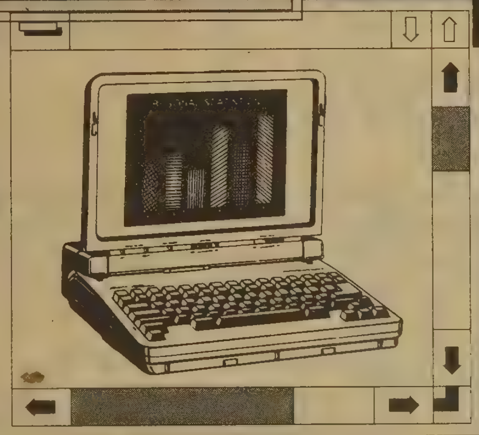

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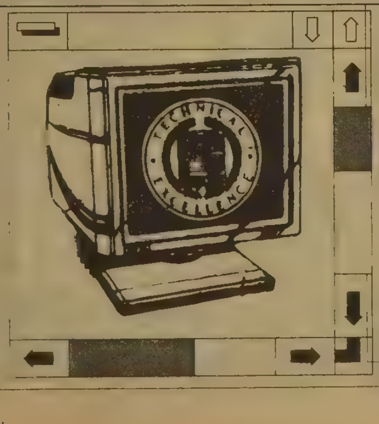

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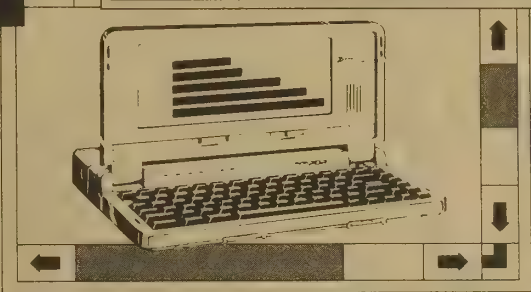

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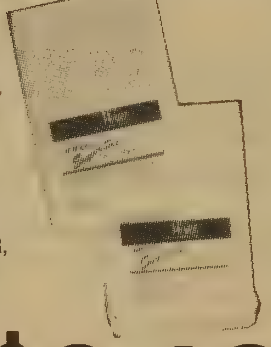

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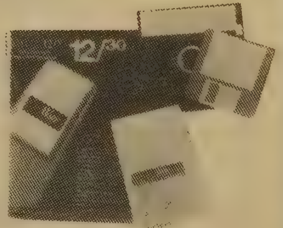

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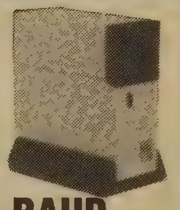

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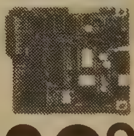

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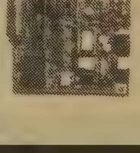

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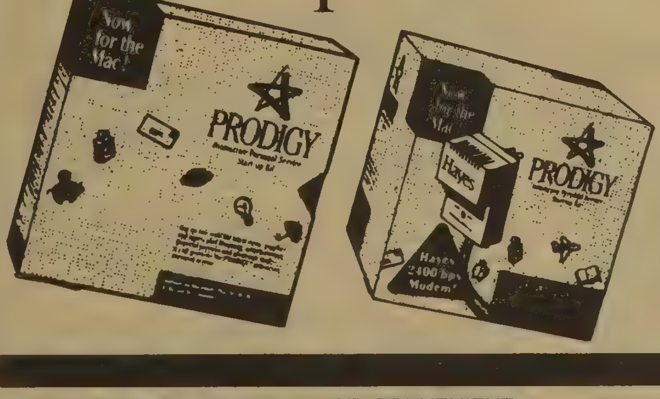

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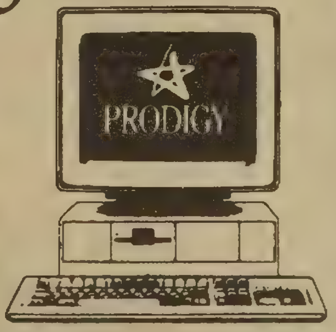

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80387

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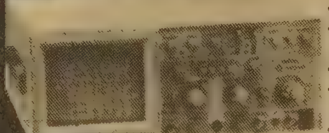
Model 2120

- Dual or single trace operation • 1 mv/div sensitivity
- 20MHz response at a true - 3dB • AUTO/NORM triggered sweep operation with AC, TVH, TVV & line coupling
- Calibrated 18 step timebase with x10 magnifier
- X-Y operation • Bright, sharp, rectangular CRT with P31 phosphor • Front-panel trace rotation control
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- Compact low-profile design

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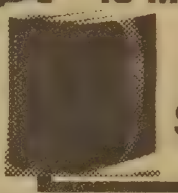

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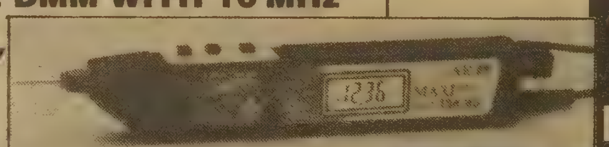

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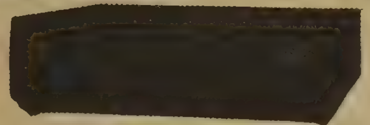

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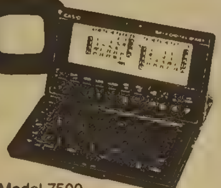

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PC Link FA-120 $99.95

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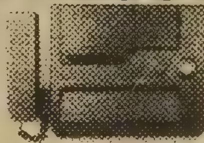

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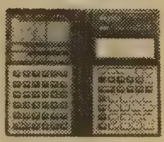

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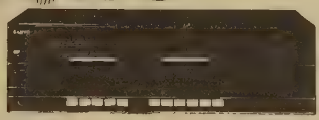

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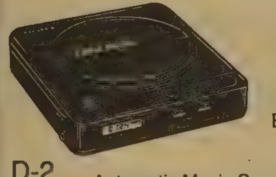

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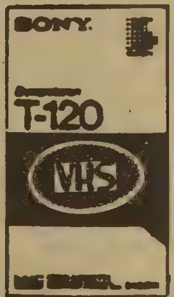

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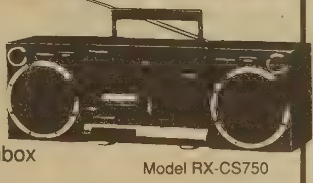

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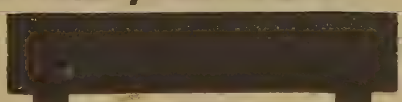

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BUSINESS COMPUTING

BY SUZANNA MUSICK

The Benefits Of Boxes

Off-The-Shelf Accounting Software

Shrink-wrapped boxes of accounting software written by companies specializing in this application can be of significant value to you and your company. These programs are sold by the box, or module, and can usually be purchased from computer dealers and resellers who specialize in business applications. The other term widely used for this type of software is "off-the-shelf," because that's normally the way it's sold.

Accounting is a complex operation, and accounting software is even more so. There are many benefits to using "boxed" or "off-the-shelf" programs whenever possible, and I would like to take this opportunity to once again get on my soapbox and sing their praises.

The Pitfalls Of Custom Packages

Let me start with a true story.

I have an associate I've used on numerous projects over the years. She is an excellent programmer, an experienced, topnotch technician, and I trust her implicitly with the projects I've given her. Recently, one of her clients gave her the project of writing an accounting system. It almost killed her *and* her staff. After three months of 14-hour days and seven-day weeks, she swears she will never write another accounting program.

Why?

If you look at a particular function of the accounting process independently, it may appear quite simple. Once you start the process of integrating the different aspects of accounting together, however, it can quickly become overwhelming.

First, just understanding how the modules "talk" to each other and fit together is a challenge in and of itself. That's why there are accounting majors in universities—you don't learn it in one or two classes.

Finally, if a programmer succeeds in eventually grasping the mechanics of the accounting system, there's still the actual programming task ahead. The major problem with accounting software is that if you make a change in one area, it will probably affect other areas, making the software extremely difficult to maintain, debug, and enhance.

My advice is: whenever possible, take the easy way out and buy a "box." Sure, it often means a bit of a compromise, but if you ever want to see the system working well for you, a little compromise can go a long way toward achieving success.

Copyright © 1990 by Suzanna Musick. All rights reserved. Suzanna Musick is a manager in the Computer Consulting Department of Hemming Morse Inc., CPAs. Her experience encompasses a wide range of industries such as distribution, retail, construction, real estate, financial and professional services.

My advice is: whenever possible, take the easy way out and buy a "box." Sure, it often means a bit of a compromise, but if you ever want to see the system working well for you, a little compromise can go a long way toward achieving success.

The Beauty Of Boxes

When you buy a reputable program (which is easy enough to discern—read the reviews and/or talk to your business dealers and accounting consultants), you are usually getting a great deal more than you initially perceive.

First, you're getting expertise. Any software developer investing hundreds of thousands of dollars in program development is going to have people working on it who know what they're doing. Often CPAs are involved in the design of the program, or at least as advisors to the developers. Finally, once the program is completed, it is tested and debugged (as much as possible) before its release—your office is not the test site.

An accounting software manufacturer will provide support for the program, whether directly to you the user, or to your consultant and/or dealer. Some companies have 800 numbers; for others it's on your nickel. Some software companies do not provide direct user support, but rather encourage you to work directly with your dealer or consultant. They then support the consultant (who has received their training and is expected to be knowledgeable about the program) if the reseller needs assistance in solving your problem. This approach is most common on the high-end products which normally require the involvement of a qualified consultant to help ensure a successful conversion. The manufacturer depends on these knowledgeable professionals (aka "Qualified Installers") to troubleshoot a problem, narrowing it to a clearly defined issue that the manufacturer can address effectively.

In any case, support is available, and that's critically important. Many of the people who become our clients have changed from one program to another because they couldn't get support on the first package. Be sure you find out before you buy a program what support is available to you and your company.

As I said earlier, a manufacturer will test for bugs before the product is released for shipping, but invariably some slip by undetected. A "boxed" software vendor will provide fixes to these problems as they are detected, at no charge. Further, you are getting the benefit of the other users of the program, who make requests for changes and improvements to the software. The resulting enhancements appear in new releases of the software.

Periodically, a major new version of the program will be released. This will include not only bug fixes and enhancements, but often completely new features beyond the capabilities of the earlier version.

In the last year we have seen significant improvements in accounting software, especially in ease of use. A few such improvements have included the ability to look up and/or add customers, vendors, etc. on the screen, to jump around in the program without having to exit out of one menu and enter into another, to create your own custom reports and then be able to add them to your individual menu. There's also faster access to your data and better use of color.

These are some of the reasons I feel so strongly that "boxed" accounting software is such a good deal for you and your company. I believe that in reality you're paying bargain-basement prices for the functionality of these programs. No less work goes into programming a high-end microcomputer product than a minicomputer equivalent, but the difference in pricing can be astounding. Also, the annual support contract for microcomputer accounting software is significantly less than you would pay in another operating environment.

All in all, you're getting a good deal with an off-the-shelf package. Add to a "boxed" program good internal management of your people and paperwork, and you'll have a system that will provide you with valuable information to run your business in a timely and efficient manner. ■

HARDWARE REVIEW

Any Computer can have a REMOVABLE HARD DISK

Since Computers can practically be had on a *per pound* basis (sort of like sowbellies) and DRAMs are to be traded on the Chicago Commodity Exchange soon, it makes more sense now than ever to put your money where your money already is.

What is the real value of your computer?

If a burglar steals your computer, where is the true loss, the hardware? No, because the insurance can replace the hardware. But, the programs and data (the very **heart & soul** of your business or activity) are the **real loss.**

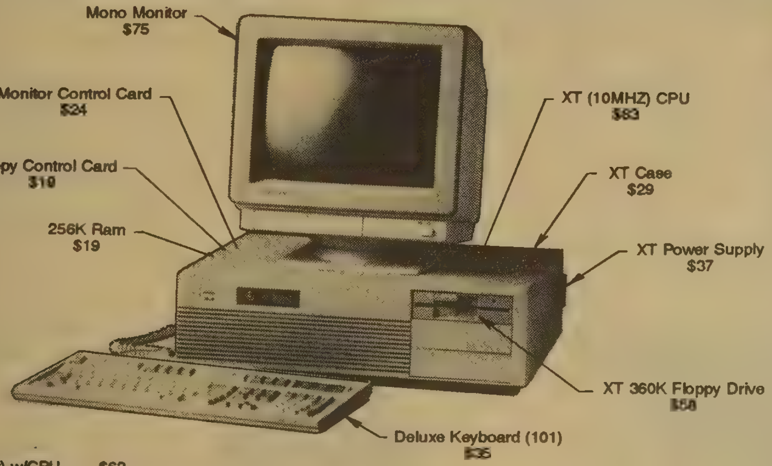
If you're thinking about adding some more hard disk drive capacity to your computer, consider this, you can have a

20 MB Removable Drive for:

$349 complete/installed

(for 30 MB add $50)

Hard drives have gotten so reliable and with restoral & diagnostic programs, have virtually eliminated all disk data loss. It makes sense to protect your data because that's where the true value is. Plus, if you would like to take your work home, it's easier than lugging a computer back and fourth, when all you really need is the data.



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XT Power Supply	37
XT Case	29
XT 360K FDD	58
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Keyboard	35
FDD Controller	19
Monitor Controller	24
256K Ram	19
TOTAL	$359

TURBO-XT 10MHz

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by INTERTECH

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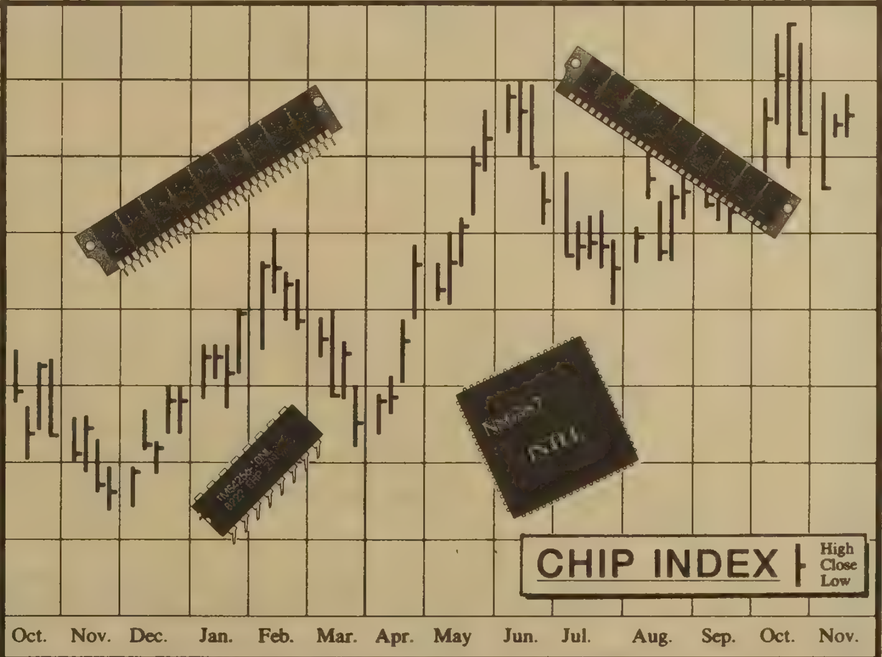

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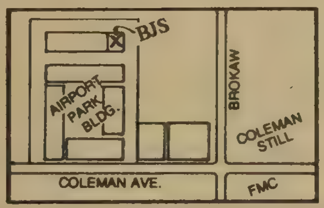

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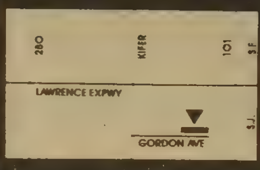

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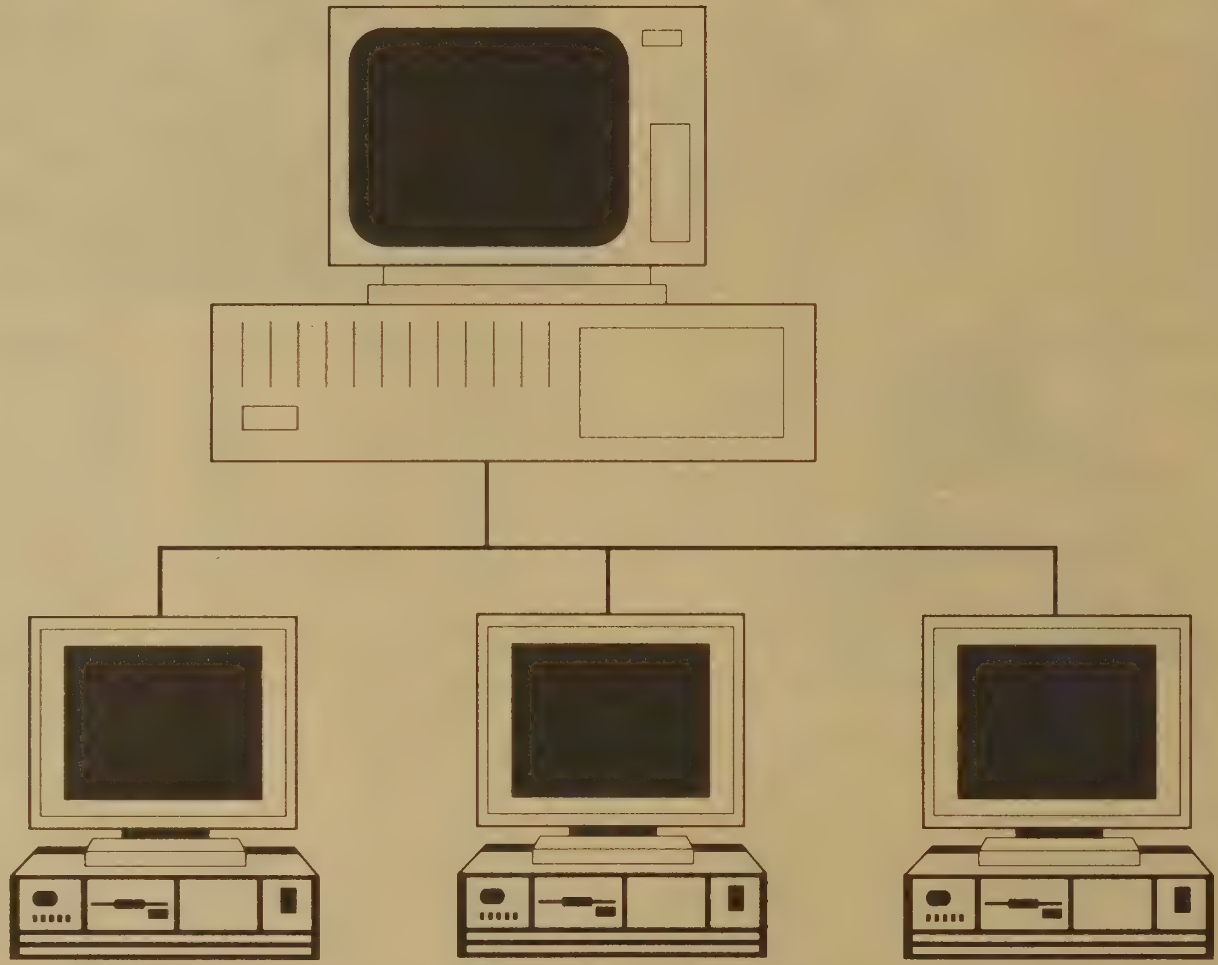

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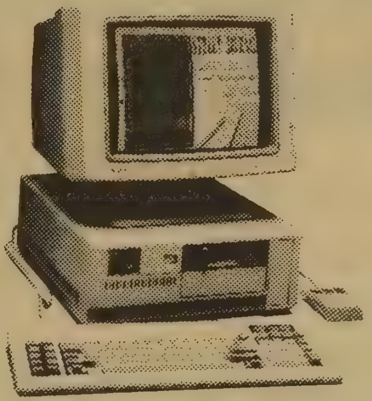

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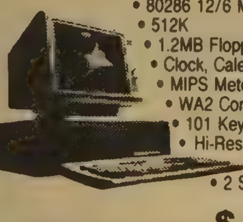

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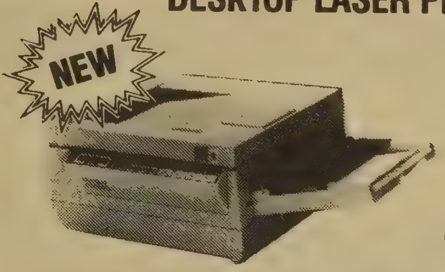

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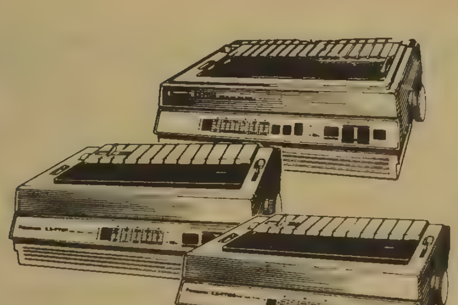

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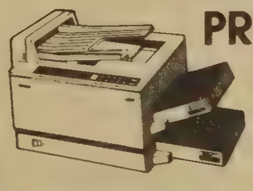

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UNIX

BY BENNETT FALK

The Theology Of Bugs In UNIX: A User's Catechism

There are no books about bugs. There are shelves full of books about programming; whole journals are devoted to algorithms, and monographs describing debugging techniques are not uncommon. But there are no books about bugs. In spite of this, the phone rings daily and voices on the other end say, "I want to report a bug."

It does no good to insist to these voices that first they say "Hello." In our particular place and time the reporting of bugs is a sacred office. A bug has been found, it must be reported.

"What sort of bug is it you wish to report?" "What sorts of bugs are there?" comes the reply.

The urge to report bugs is, it seems, innate; the knowledge of what bugs are apparently is not. Look at the clock—do we have plenty of time? Perhaps an inductive approach is best.

Pick up the UNIX System User's Manual from AT&T and read the introductory manual page for Section 1. For the uninitiated, UNIX manual entries consist of several sections that occur in the same order: NAME, SYNOPSIS, DESCRIPTION, FILES, SEE ALSO, DIAGNOSTICS, and BUGS.

"Isn't it kind of strange," the voices on the phone ask, "for there to be a BUGS section in UNIX documentation?"

You think it's strange now. Wait until you've read some of the bug descriptions.

The introduction to Section 1 very briefly describes UNIX command syntax. Under the BUGS heading is a single sentence: "Regretfully, many commands do not adhere to the aforementioned syntax."

What does this mean? Some readers will see only some questionable English usage and a bug having to do with standards: non-conformity is a defect. However, this is also a "confession-of-human-frailty" bug report, in which a "sorrow aroused by circumstances beyond one's power to remedy" is acknowledged. Non-conformity may well be a defect, but that by itself does not guarantee that standards can be enforced. In the manual page for "term" in Section 5, a similar sentiment is expressed: "This is a small candle trying to illuminate a large, dark problem. Programs that ought to adhere to this nomenclature do so somewhat fitfully."

Copyright © 1990 by Bennett Falk. All rights reserved. Bennett Falk lives in the Bay Area, writes when he can, and hopes for the best. He works for Sybase, but the opinions and attitudes expressed here are his own.

"These," the voices say, "are not normal bug reports."

If by "normal bug report," you mean "work order to fix something," no, they are not normal bug reports. The problems recorded under the BUGS headings in the UNIX manuals may not be fixable.

"We will accept the notion of a 'standards' bug, but we are not convinced that human frailty is appropriate to a bug report. What other sorts of bugs are there?"

Consider the 'grep' command. As you may know there are several variations on 'grep' ('egrep', 'fgrep') each offering a slightly different facility for finding regular expressions in files. The manual entry for 'grep' in Section 1 of the manual records the 'economy-of-algorithms' bug; Ideally there should be only one grep, but we don't know a single algorithm that spans a wide enough range of space-time tradeoffs.

"This sounds suspiciously like human frailty again!"

The problem with 'grep' is more than human frailty. The various members of the grep family function perfectly well in most applications. They are built on sound algorithms. Structurally the programs have no defects, but the fact that their various nuances cannot be offered in the scope of a single program is cause for a bug notice in the manual. In this case, the bug is not a defect in the usual sense, it's just that we can imagine an ideal program that no one knows enough to write.

"We thought you said the problem was not human frailty. Can we move on to something a little more conventional?"

Gladly. If you read on among the bugs listed for 'grep', you'll see this notice: "Lines are limited to 256 characters. Longer lines are truncated." There's a similar notice with the 'sort' command: "Very long lines are silently truncated."

"Now this is what we call a 'bug'!"

Yes, but what is the nature of this bug? Is it the fact that grep and sort have a line limit at all? Is it the silent enforcement of these limits? No doubt there was a time when people worked at 80 column terminals with ascii editors and 256 characters seemed more than generous. Perhaps there was no bug at all until someone used grep on a file with long lines downloaded from some other source and actually lost data.

These are "limit" bugs, and they are very dangerous. When any limit that is hardcoded into a program is exceeded, there is some risk that data will be lost. But notice how difficult such bugs are to fix. We don't know what length lines the program will have to examine. We could print out a message any time the program truncated a line, but this would make it difficult to use the program in "pipelines" or other non-interactive situations.

Some have suggested in all seriousness that the only "fix" to such a bug is to document the limits and in doing so, change the users' expectation of how the program is to behave. Lovers of paradox will note immediately that the bug report itself is the fix. Pragmatists will observe that in new versions of the UNIX Manuals, the section heading for these reports has changed from BUGS to NOTES.

"We think it's very odd that you deal with a bug which may cause data corruption by managing the users' expectations."

The line between use and expectation is very thin, and it's a simple matter to move from unrealistic expectations to inappropriate usage. The UNIX manuals duly record this ambivalence toward what the users expect. Look at the manual entries for "script" (which appears only in the Berkeley UNIX Manual) and for "cal".

The "script" command records an entire terminal session in a file. The bug notice for "script" reads: Script places *everything* in the log file. This is not what the naive user expects.

Cal produces a calendar for any year or month the user specifies. The BUGS section for cal reads: "The year is always considered to start in January even though this is historically naive." Cal prints out the calendar the modern user expects even though such a calendar may be inaccurate. The authors of the bug reports in the UNIX manual tolerate naiveté, but only to the extent that the accuracy of results is not compromised.

There was a brief silence.

"Let us get all this straight," the voices posed.

"It's a bug not to conform to standards, but it's probably not possible to enforce conformity. It's a bug when a perfectly useful program does what it is supposed to do in a way that might not be ideal, even though we don't know how to implement the ideal solution. It's a bug to hardcode limits, but maybe not, if users never run into them or if the limits are documented. It's a bug to confuse a user unless avoiding confusion means incorrect results. This is not what we thought bugs were."

No doubt you could find other sorts of bugs if you looked carefully through the manual, but these are representative. They've been in the manual for years.

"Does anyone ever try to fix them?"

How would we learn about bugs if they did? ■

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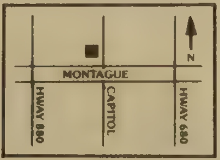

Choosing A LAN-Based Accounting System

By Scott Brinson and Bob Brewster
Guest Columnists

The 1980s have seen massive leaps forward in the development of personal computers. Data storage has become relatively inexpensive, processing speed has increased dramatically, and the ability to network workstations together has allowed smaller businesses to afford computer systems that previously were the exclusive property of larger companies.

Today, the power of PC-based accounting often matches and outperforms the power, speed, and storage capabilities of a mini or mainframe accounting system for considerably less cost. With all this power available, companies trying to decide whether to computerize their accounting system should know that they have many options.

Once you determine that it's time to change accounting systems, whether it's moving from a manual to a computerized system or upgrading a computer-based system to one with more features, there are many paths to follow, some of which are better than others.

Do Your Homework

For starters, we suggest that you research what accounting software others in your industry are using, and find out how well it meets their needs. Be wary of software resellers who suggest solutions without really understanding your business; most of the time they are limited to certain products which they must sell. In many cases, their software will work; however, it is usually modified after the fact to handle a particular function, and the modification process can be both time-consuming and costly. Forcing a particular package to work could lead to problems in the future.

Many companies fall into the trap of purchasing an accounting package over the counter from a software store. The salesman gives a great pitch, you write a check, and off you go to install this wonderful, low-cost, do-it-yourself accounting system. Little do these customers realize that, with accounting systems, the physical package is only the tip of the iceberg. According to a recent survey, the software package is only 55% of the total amount you will need to spend. The additional 45% will be linked to installation, training, and ongoing support.

The Hidden Costs

When you buy an accounting system, you still have to deal with the difficult part—installation, training, and getting the system on line. You should make sure the company you're buying the software from has local support to help with the installation and training. Most high-end software companies have good support services, but when you're setting up your system for the first time it is very beneficial, time-wise, to have somebody on site who can show you the shortcuts. Before you buy, ask to meet the person who will be working with you on the installation and training so you can be sure that you feel comfortable with them.

Also, insist on a demonstration of the software that's being recommended. We are constantly amazed by how many companies buy accounting software without seeing it work first.

Look To The Future

Be sure you look for a package that solves more than today's problems. A single-user system may be all that you need today; however, a year later you may realize that you need multiple workstations to support your growth. Some accounting packages will transfer over to a network environment very easily, while others may have to be scrapped completely.

There are many advantages to networking your accounting package as well as your entire company, so be sure that you take full advantage of the technology available today. When the accounting package is networked, as compared to a single user version, inputting of data can be performed by many employees simultaneously. As each file is updated, the current version is readily available for anyone connected on the network, provided that they have been given the security rights.

Novell, the industry standard in computer networks, allows PC-based accounting packages to become a very powerful management tool. At any time or from any location, different departments can access up-to-date information through the network. For example, sales managers can immediately access the current status on sales volume, individual productivity, profit margins, and many other statistics to help them in their decision making.

Simultaneously, the controller can monitor payments on those sales and calculate cash flow requirements. Easy access to information is the key to efficiency, regardless of the size of the company. The ability to share files, printers, modems, and countless other peripherals, at lightning speed through networking, will be the key to a successful business in the future.

Networking your business is not inexpensive, but don't let cost frighten you into shopping only for the lowest price. Proper installation and after-sale support is far more important than the initial proposed price of the network.

Buy From A Reliable Vendor

When purchasing hardware or considering networks, demand to see a list of references. Be sure the company selling you the hardware is not a one-man show or just a box pusher. Remember, you as a customer don't want to know why it works, you just want it to be working when you need it. Make sure the company you purchase the hardware from is service-oriented. Don't be afraid to ask what their response time is if your system goes down, and make sure they back up their promises in writing. Ask them if their technicians are certified—for example, Novell Certified Technicians.

Networking your business is not inexpensive, but don't let cost frighten you into shopping only for the lowest price. Proper installation and after-sale support is far more important than the initial proposed price of the network. Networking your company is a commitment; it becomes the foundation upon which your business grows.

With priceless data at stake, don't let amateurs experiment on your company. The company selling you the network should be professional and become a business consultant, not just a hardware supplier. ■

LAN columnist Wayne Yacco is on leave. In his absence, we'll be featuring a series of guest columns by knowledgeable networking professionals. This column was written by Scott Brinson and Bob Brewster of ARTEX, The Network Solution, in Huntington Beach. They can be reached at (714)897-7079.

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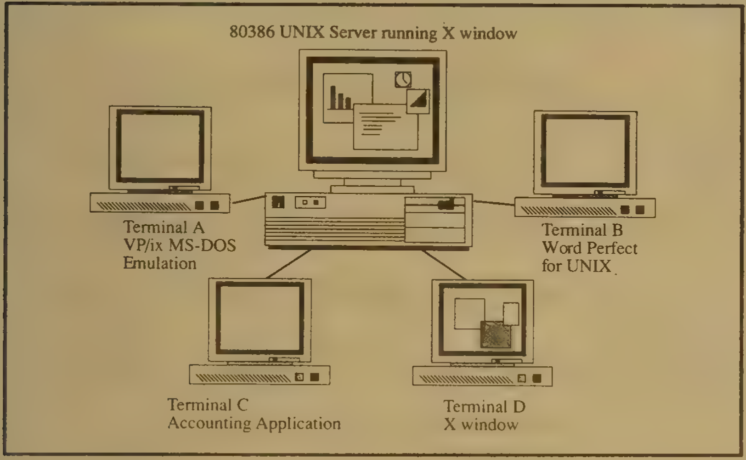

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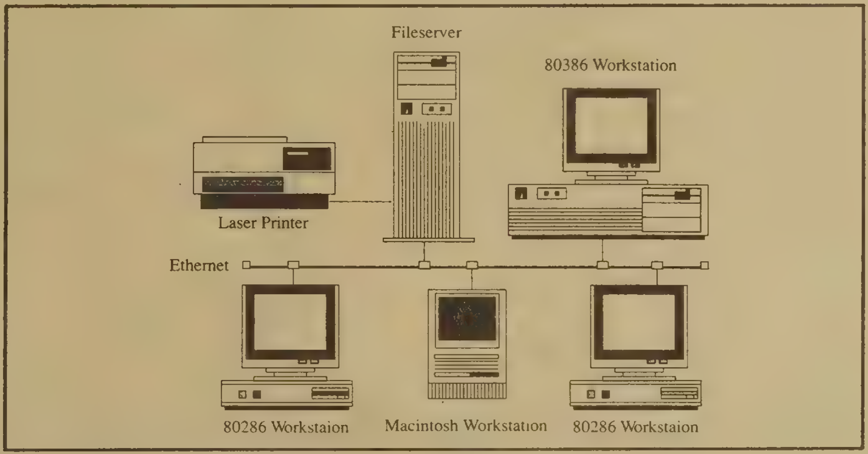

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TELECOMMUNICATIONS

BY BROCK N. MEEKS

Information: The Business Battlefield

Competition—it's the lifeblood of business. Whether you compete in the high-powered arena of corporate mergers and acquisitions, or in the trenches of the board room, your success often depends on how much information you've been able to gather and analyze. The process of gathering this information is embodied in the glitzy high-tech phrase "competitive intelligence" (or just "CI" to the cognoscenti).

Some call this a strategy of "information wars," and at times it resembles the covert world of spy vs. spy. Indeed, hardball CI tactics may include stunts such as taking aerial photos of parking lots (to count employees), rifling through corporate dumpsters, counting box cars, and conducting fake interviews. Most CI experts, however, prefer using the resources of online data bases. Why? It's completely legal—all information retrieved online is publicly available.

"There is no need for a corporation to engage in 'industrial espionage'," says Rob Aaron, a principal of Aaron/Smith Associates, an Atlanta-based information-gathering firm. "Our firm specializes in gathering data from more than one thousand data bases," he says. "If you spend enough time with the information gathered, you can draw amazingly accurate conclusions," without resorting to questionable methods.

Online Arsenal

Alfred Glossbrenner, in his book *How to Look It Up Online*, says it doesn't matter "whether you're buying stock, acquiring companies, or maneuvering for a competitive advantage—you can vastly improve your chances if you've got the information." The majority of this information is available online. In his book Glossbrenner also notes, "Business information is the hottest, most competitive section of the electronic universe right now." It is an expanding universe.

According to Matthew Lesko, author of *Information U.S.A.* and *The Computer Data and Database Source Book*, there are more than three thousand online data bases available to the public. All these data bases result in a kind of online arsenal, and everyone from giant multinational conglomerates to small niche businesses has access to the same "information weapons."

"It amounts to a classic 'David and Goliath' showdown," says Carol Galvin, marketing manager for Business Research Corporation's InvesText service. Online data access "gives the bigger companies more clout (they can afford bigger CI staffs; they spend more money for CI), but it's also giving the smaller companies a better slingshot," she said.

Be it slingshots or cannons, CI experts choose their weapons carefully. Often it is the knowledge of a single, obscure data base that provides a vital piece of information.

Aaron points to a typical example of a little-known data base that seems tailor-made for CI applications: PIERS (port import and export research service) run by Knight-Ridder. "It is an online gold mine," says Aaron.

PIERS tracks every incoming and outgoing ship—in every US port—by uploading each ship's manifest to a central computer. In addition to the manifest, each shipment's destination and supplier are also input on the computer.

This data base is extremely useful for tracking how much of a competitor's product is being exported and where it's going. It is also useful for assessing the general health of a particular industry.

CI At Work

Online sources are essential for gathering what Aaron calls "outside information." Most well-run companies have a good idea of the types of information they generate, such as financial information, customer and product lists, and the like. However, Aaron notes: "Most companies are ignorant of how much information is available for tracking a competitor. So we're hired to do their homework."

Aaron points to a case history. One of his clients (he declined to supply the name) wanted to buy a factory producing a cellophane-like product. "Our client needed to know what a reasonable asking price would be for the plant. So we set out to arm them with all the relevant facts," he said.

Aaron started by using the InvesText data base to discover the owner of the plant: a multinational conglomerate. But there was no information on the output of the plant or its net worth, both indispensable pieces of information. To provide that information, Aaron first searched through the local business press. "Executives of regional firms are more comfortable when talking to the local trade press," Aaron said. "And they'll often spill a lot of details to a local reporter. That stuff doesn't get reported in *The Wall Street Journal*."

To gather regional press information, Aaron says he might tap into a data base such as Business Dateline, Regional Business News, or Area Business Databank. These data bases cover several hundred local newspapers and business journals.

Using information gathered from these data bases, Aaron discovered that the target plant was undergoing a major renovation, tripling its capacity, and had recently put on a hiring drive. Then, by tapping a biographical data base, such as Marquis's Who's Who or the Standard and Poor's Register, he found that the person in charge of the factory had been promoted to the head of the plastics division, which indicated to Aaron that the parent company had a continued interest in that particular product line.

By monitoring the local newspaper, via the VU/TEXT data base, Aaron found a complete description of the plant's machinery and the refurbishing cost, some $12 million.

Hardball Competitive Intelligence tactics may include stunts such as taking aerial photos of parking lots (to count employees), rifling through corporate dumpsters, counting box cars, and conducting fake interviews. Most CI experts, however, prefer using the resources of online data bases.

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"With all that information on the table, the acquisition talks were much more open," said Aaron. "The plant's owners figured they had nothing left to hide. My client was in the driver's seat. They knew if the other company was blowing smoke or were serious about making the deal."

Beyond Power Brokers

Most of us will never spearhead a hostile takeover attempt or a billion-dollar merger. Does this mean that CI can't work for you and me?

"Absolutely not," says Matt Potter, former city planner, political aide and newspaper reporter, who now heads For The Record, a self-styled "information consulting firm." Potter describes his work as helping clients gather information as mundane as trust deeds or as explosive as corrupt political transactions.

Potter believes that CI can "help make the system work for you, instead of against you." The "system" Potter is talking about starts with local government and escalates to the federal level.

Potter believes that small businesses can especially benefit from CI. He cited a case study of how a small shop owner used CI to expose an unfair redevelopment project that would have destroyed the small shop's business. Using mostly newspaper data bases, the small businessman uncovered unethical ties between the proposed developer and a local politician. He took this information to the city's district attorney and an investigation was opened. The project was eventually declared illegal; the business was saved.

But CI can also benefit an individual's career. Anyone from an astrophysicist to a zoologist can benefit from developing a CI strategy revolving around a chosen profession. There are two ways to do this: hard or easy.

The hard way is to read every professional trade journal published in your field, and scour the daily newspapers. (This gets the job done; however, you'll have no social life to speak of.)

An easier way is to enlist the power of SDI, not the "star wars" technology, but the CI technique known as "selective dissemination of information." Aaron defines SDI as "continually monitoring a data base, in reference to a specific topic, using a pre-defined set of keywords." In essence, SDI is nothing more than a process whereby you set up an electronic news clipping service.

A good example of this SDI technique is the News Flash service offered by NewsNet. News Flash will continually check all its incoming information (from hourly news wire copy to more than three hundred industry newsletters) against any keywords or phrases you've asked it to look for.

For example, a scientist doing research on superconductivity, might simply specify the word *superconductivity.* Thereafter, each time NewsNet receives a new piece of information that contains the word "superconductivity" it automatically places the article (in full text) in a special holding file.

When it's convenient, the scientist logs on and downloads all the information waiting in the "clip file." Now instead of manually scanning several trade journals or newspapers, and then clipping those articles, the scientist has the full text of these same articles stored on disk for easy categorizing and recall.

This SDI technique can easily be adapted to monitoring your competitor (by specifying a company name) or a specific product line.

Be it slingshots or cannons, CI experts choose their weapons carefully. Often it is the knowledge of a single, obscure data base that provides a vital piece of information.

The Real Work

Although CI analysis is great for gathering large amounts of raw data, someone still has to pull all that information together; online work is only the beginning of a fully formed CI strategy.

Potter points out that organization, looking for patterns, trends or gaps, followed by more research to augment what's been missed the first time around, is where the "real intelligence factor" plays in the CI field. No one, he contends, can say that online data bases provide all the answers.

And despite the given advantages of online access, Potter is quick to point out: "A person's brain is still the best source of data anyone can tap." ■

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AMIGA

BY MATTHEW LEEDS

Deluxe Video III: New Enhancements For A Great Product

Back in 1986, Electronic Arts released a remarkable new program for the Amiga that offered a revolutionary interface for the creation of animations mixing pictures, digitized sound effects, and music. That program was Deluxe Video.

Now, almost four years after the release of that first version, Deluxe Video III is now available.

I must tell you up front that I'm biased. Back in 1986 Electronic Arts asked me to write an advanced user's guide for Deluxe Video, and I had the privilege of working with the programmers themselves. Looking back at that first version, I find that they anticipated much of what is now found in the Hyper-type applications being touted on various machines. They certainly set a new standard for a visual interface.

Deluxe Video uses a timeline-based, object-oriented set of hierarchical events to define a script. A variety of tracks that control events can be placed in a script, and each track can contain a mixture of events and effects, called Scenes. Each option is presented in context-sensitive pop-up requesters. The program is far easier to use than describe.

Two examples may give you some idea of Deluxe Video's ease of use. To add a picture to a Deluxe Video script, you just drag a scene icon onto the Video track, double-click on it to open that scene, and then drag a Track icon down into the scene. A requester will pop up, asking you to choose a type of track. Choosing a Picture track will bring up a file requester asking you to locate the picture you want to include. The file requester is full of buttons that offer a wealth of information. Select the picture you want to use, and then drag an Effect icon down to the Picture track.

This will bring up an effect requester. From it you can select the effect that will be used to bring the picture into the scene. Selecting one of the effects, WipeIn for example, brings up a requester with all of the wipe options displayed visually. The duration of the wipe is controlled by dragging two start and end arrows that attach the Effect icon to the track. At any time you can preview the results of your selections. All this can be accomplished in much less time than it takes to read this description.

New Features

The latest version of Deluxe Video adds some very powerful new features. Support for HAM, super bitmaps, Anims and AnimBrushes, MIDI devices, genlock control, and an AREXX port all enhance an already powerful product. You can turn any scene in Deluxe Video into an Anim, or play it back with the (included) player program. You can play back an animation while scrolling a super bitmapped background. You can use motion control editing to see the exact motion paths using the mouse, and you can control event timing down to 1/60 of a second. An instant slide show utility is also included.

Copyright ©1990. All rights reserved. Matthew Leeds has been involved in the high-tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics, and related fields.

A Few Caveats

If Deluxe Video sounds like a program you might want to use, there're a few caveats.

First, it requires a minimum of one megabyte of memory, and really needs closer to two if you plan on multitasking anything else with it. Second, although the package claims it will work with two floppy drives, if you don't have a hard disk, you'll go quickly crazy as you run out of storage space (or as you swap disks) for all of the picture, brush, sound, music, and animation files you'll end up using as you create videos.

Third, although I haven't seen the ads yet, the press info Electronic Arts sent me makes much of Deluxe Video's ability to do single-frame animation to a VCR. Unless you're a programmer, or some third party creates the necessary drivers, there is no such capability in the program, just an AREXX port that can send a single message at a time to control an AREXX-capable driver. If EA had included drivers for several popular single-frame capable VCR and/or edit controllers, then they might be in a position to claim such support; as it is, the claim is somewhat misleading.

But Never Mind The Caveats…

Given the memory and storage hardware (and it's only fair to say that you would need the same hardware to do work with any other similar Amiga program), Deluxe Video becomes a playland of exploration, allowing a novice to experiment with a variety of effects, events, and relative timing of scenes. It's perfect for storyboarding, roughing out a concept, and then fine-tuning it to a professional level.

Format Wars

A few months ago, a new graphics format for the Amiga began appearing on the electronic networks that serve as the equivalent of the evening news for the computer industry. This new format, called SHAM, offered improved display of HAM images by changing the 16-color palette used in HAM images on every raster line. Debates raged on whether the improvement offered by this new format was worth the havoc it would create with applications that did not yet support it.

The entire dialog has become a moot point with the introduction of Dynamic HiRes and Dynamic HAM by NewTek. Dynamic HAM is very similar to SHAM, but it is now supported by a major manufacturer. Dynamic HiRes is a hi-res mode (640 or more horizontal pixels) that implements the same palette change per line technology used in Dynamic HAM. The results are phenomenal.

Deluxe Video uses a timeline-based, object-oriented set of hierarchical events to define a script. The program is far easier to use than describe.

Both of these modes are supported in the latest version of Digi-View, version 4.0. Images captured with this newest version can be displayed directly in Digi-Paint's display buffer, painted or modified, and dumped back into Digi-View's buffer for further work. Also new in version 4.0 are AREXX support, resolution changes without quitting, a new file requester, Dyna-Show (a slide show program that supports the new display modes), better control over the Digi-Droid, 68020 support, and a toll-free support line.

There are some side effects to the new Dynamic HiRes mode. It wants *all* of your Amiga's processor time. Effectively, you cannot multitask while using this new mode. If you move your mouse while displaying a Dynamic HiRes image in Digi-View, the screen turns to garbage until you stop moving the mouse. Dyna-Show does not have this problem.

NewTek has once again pioneered new technology on the Amiga. Now if they could just ship the Toaster.

New Software Picks

Game of the month is The Cycles, from Accolade. If you liked Test Drive II, you'll like this game. It's motorcycle racing at its best, in 15 countries with five skill levels. Accolade gets both kudos and curses for removing copy protection from the game. You can install it on your hard disk, but they have gone to off-disk protection (a code wheel). I've got my own ideas on theft protection, but I'd like to hear from you on what you prefer: copy protected disks, code wheels, words from the manual, un-copyable paper charts, decoder rings, etc.

PD program of the month is VirusX 4.0. Steve Tibbett has ensured that the entire Amiga community has no excuse for not practicing safe computing. VirusX does the best job of keeping up with the changing set of viruses that attempt to infect Amiga disks. Don't compute without it. ■

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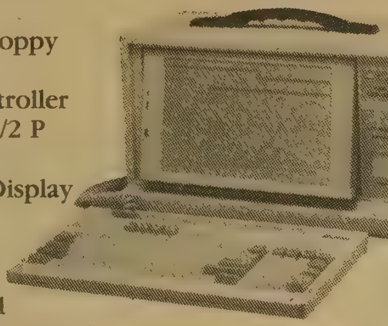

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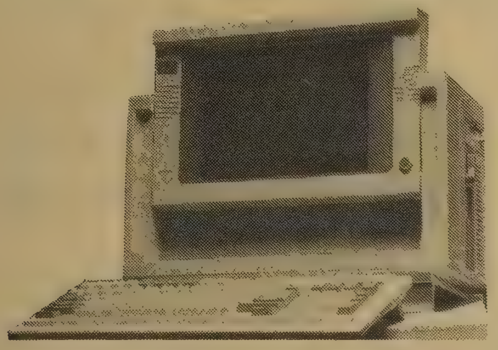

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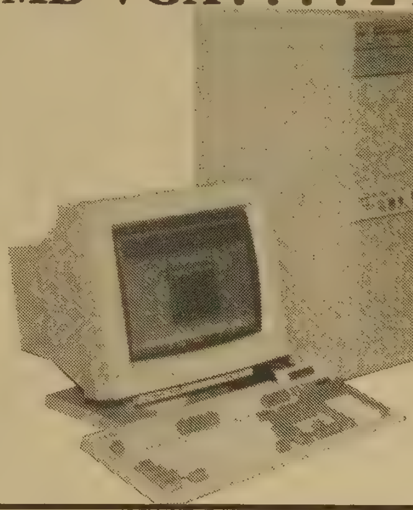

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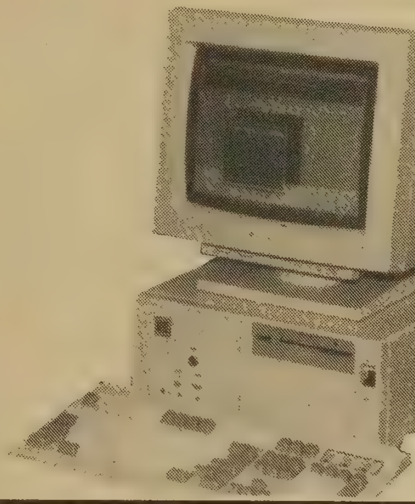

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ATARI ST

BY DAVID HAWKINS

Chaos Strikes Back

I normally wouldn't do two game columns so close together, but this game is special. The new Dungeon Master game is out! Chaos Strikes Back has been released by FTL/Software Heaven (PO Box 112489, San Diego, CA 92111). It costs approximately the same as the original Dungeon Master.

What's New About It?

When you start a game of Chaos Strikes Back, the first thing you'll notice is that your party dies off within a minute. That's just another way of saying that the game is very interesting and challenging. I was able to survive the third time I started the game up.

Chaos has lots of new monsters, and a few of the good ones from Dungeon Master. The "dungeon" is also laid out in a different fashion. Instead of steadily working your way to lower levels, you have four different paths you can explore—one each for fighter, priest, ninja, wizard. If you get bored or stuck with one path, you can go back and work on one of the others.

When you start a game of Chaos Strikes Back, the first thing you'll notice is that your party dies off within a minute. That's just another way of saying that the game is very interesting and challenging.

Copyright © 1990 by David Hawkins. All rights reserved. David Hawkins is the host of the Atari conference on The WELL (415/332-6106); send email to dhawk. He has one of the first Atari ST 1040s sold in San Francisco. Both monitors, an Okimate 20 color printer, and disks are all over the room.

The Characters

There are two ways to start up Chaos Strikes Back. You can use a team from Dungeon Master after having the Chaos utilities program convert it for the new game. If you do this, use a very advanced team. It's helpful if they're at Master level in several categories. The alternative is to go through another "Hall of Champions" and pick a new team.

Once you have selected a team, the utilities program allows you to edit their names and pictures. Then you can save the team to a new disk and use that to start the game.

Hints

Chaos Strikes Back has a Hint Oracle. You can reboot with your Utilities disk and select the Hint Oracle option. It will prompt you to insert a saved game and will provide hints appropriate to where you are in the game. If you die in the opening game a few times, you might try the Oracle for a hint or two.

There are still some things that you need that aren't in the Oracle. The Chaos manual and the Oracle don't provide a list of spells or directions on how to use spells. If you have a list from Dungeon Master, it will come in handy. As far as I know, there are no new spells.

Comparison

A lot of sequel games are a step up in quality. Chaos Strikes Back isn't, but that's because Dungeon Master was so good to start with. I've played Dungeon Master all the way though about 20 times, so it's a little odd to be in a familiar setting and be totally at a loss as to what to do next.

I've been playing Chaos for two weeks now and I'm thinking of taking my Dungeon Master team back through the DM dungeon a few times to build up their levels. There's a section of Dungeon Master where a team can continually fight worms, rock piles, and screamers, and there's plenty of water nearby. The team can go through and build themselves up in all four categories.

Spoilers

The first time I played Dungeon Master, there were a number of people who had already played it and worked out all the puzzles. When I got stuck I could ask for help. Chaos Strikes Back is still new enough that I'm on my own, so I don't have many spoilers to pass along. Like most players, I find the Fighter path the easiest of the four so far. I've taken a preliminary run down the other three paths, but haven't figured out what I'm supposed to do with them yet. Hacking up some of the old and new monsters is easy enough.

The first time I played Dungeon Master, there were a number of people who had already played it and worked out all the puzzles. When I got stuck I could ask for help. Chaos Strikes Back is still new enough that I'm on my own.

Bugs

Chaos Strikes Back is also new enough that there might be a few bugs left. I found one place where the graphics on the screen didn't match the action of the team, but it wasn't a critical error. I'd picked up a piece of armor and thrown it down the hall and the screen showed it as a sword being thrown. If you find a bug, call FTL at 1-619-453-5711, or write them at the address given at the start of this article. Be sure to describe your system completely and describe the location in the game where the bug occurs.

Do You Need To Buy Dungeon Master?

The box for Chaos Strikes Back says that you need a copy of Dungeon Master. Evidently they changed their mind after sending the box off for production—you *can* buy just Chaos and play it. However, it helps to have the Dungeon Master manual, and it really does help to have a very experienced Dungeon Master team. But if you have played Dungeon Master in the past and remember how to throw fireballs, then you could probably survive with just a Chaos Strikes Back team. ■

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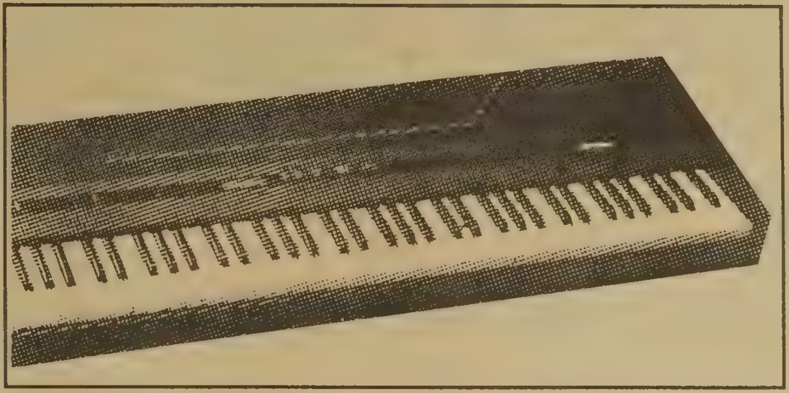

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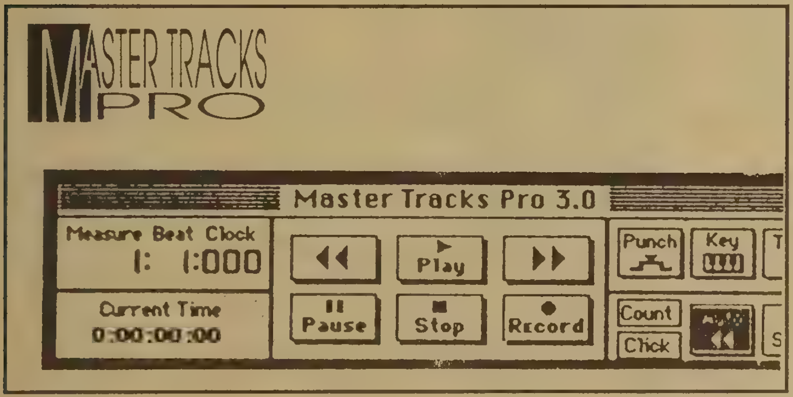

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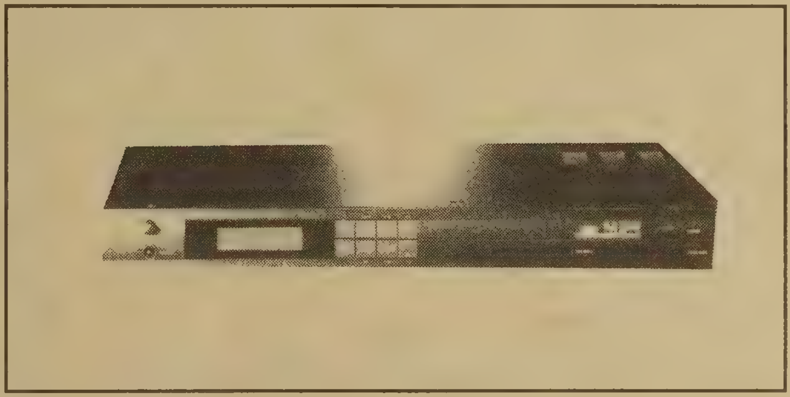

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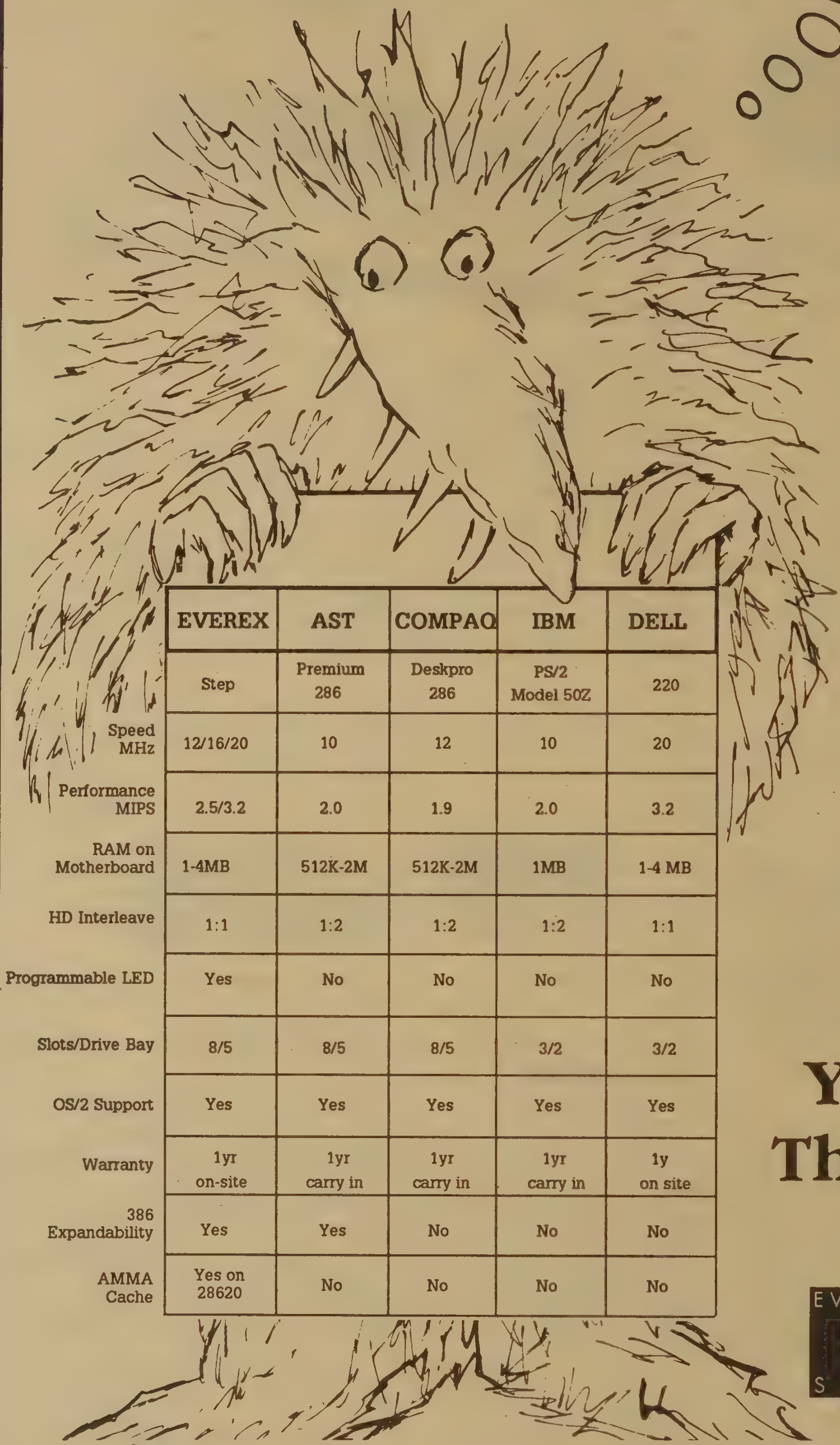

	EVEREX	AST	COMPAQ	IBM	DELL
	Step	Premium 286	Deskpro 286	PS/2 Model 50Z	220
Speed MHz	12/16/20	10	12	10	20
Performance MIPS	2.5/3.2	2.0	1.9	2.0	3.2
RAM on Motherboard	1-4MB	512K-2M	512K-2M	1MB	1-4 MB
HD Interleave	1:1	1:2	1:2	1:2	1:1
Programmable LED	Yes	No	No	No	No
Slots/Drive Bay	8/5	8/5	8/5	3/2	3/2
OS/2 Support	Yes	Yes	Yes	Yes	Yes
Warranty	1yr on-site	1yr carry in	1yr carry in	1yr carry in	1y on site
386 Expandability	Yes	Yes	No	No	No
AMMA Cache	Yes on 28620	No	No	No	No

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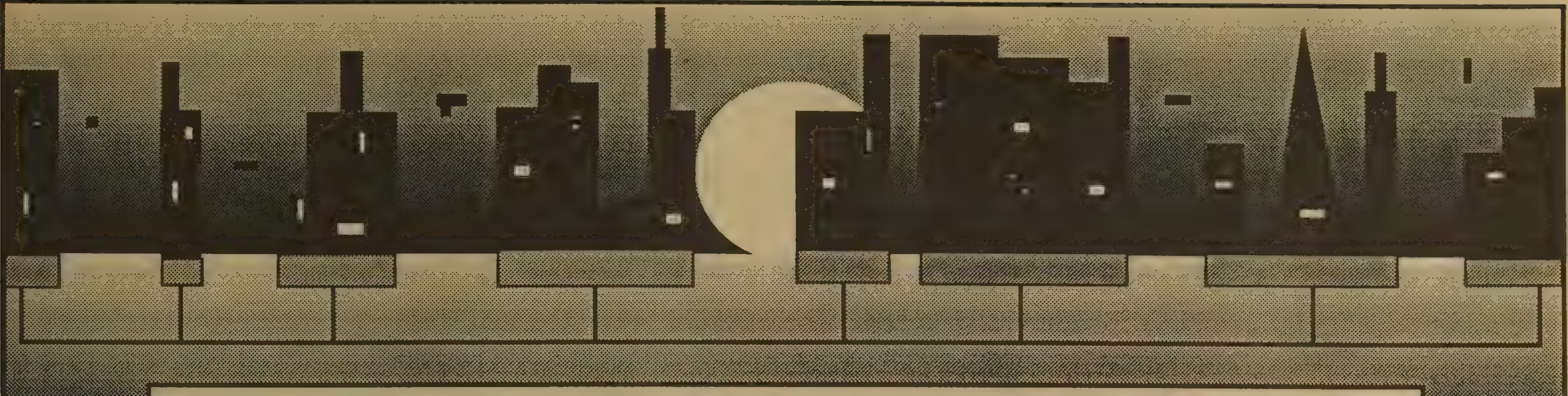

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Bringing Your Mac Plus Up To Speed

Instead of trading in your Plus on a new machine, you can add an accelerator board to maximize its performance—in some cases, beyond that of an SE/30

By Matthew Leeds

You say you're tired of watching that IIci running rings around your Plus? Tired of taking coffee breaks while waiting for your Excel spreadsheets to recalculate? Tired of doing your nails while the screen redraws in Illustrator?

A stock Macintosh Plus has some severe performance problems when compared to the current crop of machines. The 128 K ROMs, slow CPU speed, even slower SCSI transfer rate, and lack of a math coprocessor all contribute to keeping the Plus's performance lackluster. Instead of trading in your Plus on a new machine, you can add an accelerator board to maximize its performance, in some cases beyond that of an SE/30.

Accelerator manufacturers use a variety of strategies when designing their products. Each approach has its benefits and its drawbacks; the ultimate decision is up to you.

The Fast 68000 Approach

The simplest approach is to use a 16 MHz 68000 CPU in place of the stock 8 MHz 68000 in the Plus. Since the CPU is running at roughly double speed, you might assume that performance is doubled. This is not always the case, but in general is about what you can expect with some applications.

Running at twice the speed does require some additional changes. The speed of the memory chips on most Pluses is 150 ns (nanoseconds). Replacing the stock 68000 with a 16 MHz unit requires setting a wait state, or replacing the 150 ns memory with 120 ns or better (see below).

The latter option has some advantages. Wait states degrade the performance of any machine. Besides, when buying extra memory it's good to plan ahead. The Mac II family, as it continues to use faster CPUs, will require 100 ns and even 80 ns memory. If you are considering an eventual upgrade to a Mac IIcx or IIci, keep in mind the ns rating of the memory you buy.

Generally, with an accelerator for the Plus, you need to place memory on the board. This normally requires using low profile parts (SOJ, otherwise known as surface mount) instead of high profile DIPs. Clearance inside the Plus is tight.

Remember—adding an accelerator card may preclude or conflict with other cards you already

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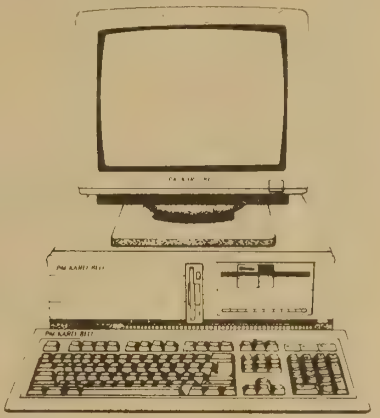

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have or may want to add to your Plus. Also, some accelerators can only be populated with one megabyte or 4 Mb of memory; the 2.5 Mb intermediate expansion is not supported.

The Siclone board ships with two 32 K SIMMs that can be used on the motherboard in place of the memory currently there. The Plus usually requires a minimum amount of memory on the motherboard for video and sound buffers. The Siclone approach lets you use the memory currently on the motherboard on the accelerator, and access it at the higher clock speed.

All accelerator products offer a math coprocessor socket, supporting the 68881 and/or 68882 FPU (floating point unit). In all but one instance the FPU runs at the same speed as the CPU. The 68000 does not provide direct support for an FPU, so each manufacturer has to provide code, usually in the form of an INIT, that intercepts system calls for floating point math and redirects them to the FPU. Generally this code also includes a rewrite of the SANE math routines in the Macintosh's operating system.

The 32-Bit Options

A different approach is to use either the 68020 or 68030 CPUs. These are capable of executing instructions at least twice as fast as a 68000; they also provide direct support for an FPU and come in speeds in excess of 25 MHz. The speed gains come in part from the clock speed, but also from the fact that the 68020/30's can address memory in 32 bit words instead of the 16 bit words of the 68000.

They also contain memory caches inside the CPU. These store data and program code. If a program executes the same loop over and over, or if it operates on the same data in a loop, the cache allows the CPU to avoid having to read data or instructions from memory. This saves clock cycles, and speeds up program execution.

For your Plus to address memory as 32 bit, the memory must be on the accelerator board, and generally it must be faster than the 150 ns memory the Plus normally comes with. If you use the 150 ns memory, you will need to set wait states, losing some of the potential speed improvement the accelerator offers.

In evaluating the relative costs and benefits of accelerator products, you should take into account the cost of memory you'll need to get the most from them.

Two products listed in this article use a static RAM cache. This is a very high speed RAM cache, similar to the on-board caches of the 68020/30 chips. These do not allow for additional memory to be placed on the accelerator, but they also do not require the use of faster RAM.

> **In evaluating the relative costs and benefits of accelerator products, you should take into account the cost of memory you'll need to get the most from them.**

Another technique for speed improvements is to remap the 16 bit Macintosh ROMs into the faster memory on the accelerators; either the 32 bit memory or the 32 bit static RAM cache.

All of the 68020/30 accelerators come with software that lets you control the CPU caches (needed to run self-modifying code—a no-no, but some programs still do it), custom SANE INITs, and some offer other utilities like ROM to RAM remapping, SCSI formatters (see below), and hard drive management tools.

The Plus has a slow SCSI hard drive data transfer rate of 265 megabytes/second, far slower than the rest of the Macintosh family. This is due in part to

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Product	Accelerator 16	FasTrack	Mac20MX	MacAdapt Turbo SE	Gemini 020	PROboard
Phone #	408-434-1011	800-325-1895	904-427-2358	408-734-9151	503-345-7395	416-925-2739
List Price 16 MHz version	$795 w/fan	$599 need fan	$895; $149 fan	$696 w/fan	$1195 w/fan	$1425 w/fan
Speed CPU in MHz	16 68020	12 68020	16 to 25 68020/30	16 68000	16 to 25 68020/30	16 68020
Speed FPU in MHz	16 68881 $300	16 68882 $300	16 68881 $300	16 68881 $399	16 68881 $300	16 68881 $249
Ram cache	32 K static included	256 K static $699	n/a	ROMs on board	n/a	n/a
Expandable	no	just cache	yes	yes	yes	yes
Increments	n/a	n/a	4-256 K or 4-1 Mb SIMMS	1 Mb 2.5 Mb 4 Mb same as Plus	4-256 K or 4-1 Mb SIMMS	4-256 K or 4-1 Mb SIMMS
Ram speed	n/a	n/a	80 ns or + for 16 MHz	120 ns 150 ns 1ws	100 ns or + for 16 MHz	120 ns or + for 16 MHz
SANE Init	yes	yes	yes	yes	yes	yes
Wait states	n/a	n/a	at 80 ns none	at 120 ns none	at 100 ns none	150 ns 2 ws 120 ns 1ws
Map ROM to RAM	via cache	coming	yes	n/a	yes	yes
Main memory used	yes	yes	yes 1 or 4 Mb	shipped w/ 64 K of SIMMS for video and sound	yes 1 Mb only as 16-bit 2 ws	not needed
Display support	Full Page	none	MegaGraphic	none	E-Machine MegaGraphic	variety
Hard drive conflicts	some; allows 1:1 interleave	none	some with removable; allows 2:1 with own SCSI	some; allows 1:1 with own SCSI	allows 1:1 with own SCSI	unknown
Price w/ CPU, FPU, and fan	$1095	$1049	$1344	$1095	$1495	$1425

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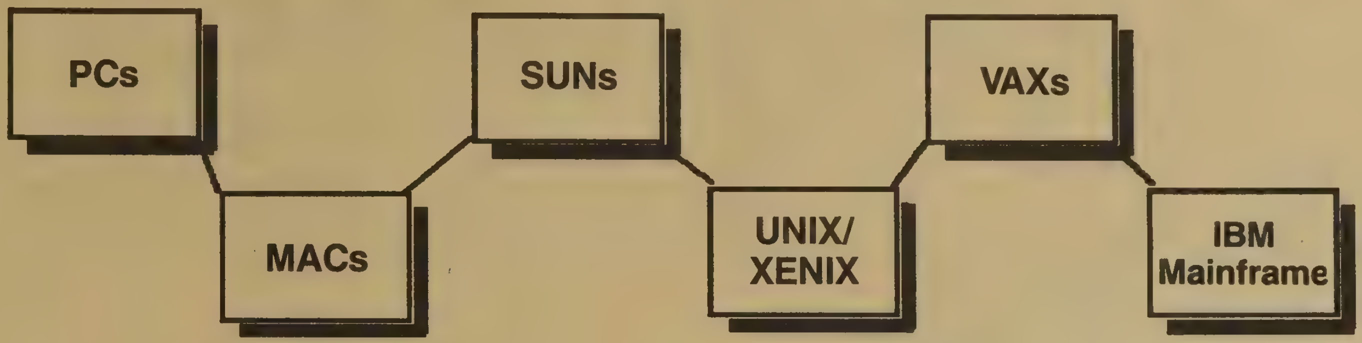

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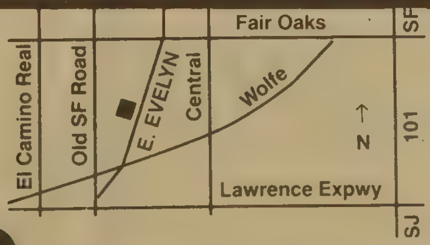

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the slow processing speed of the CPU, and in part to the 128 K ROMs.

Many hard drives used with a Plus are set to a 3:1 interleave, intentionally slowing down the data transfer rate of the drive. Adding an accelerator improves the hard drive transfer rate of the Plus. Many of the accelerator cards have their own SCSI port. This improved performance has one drawback: you'll need to reformat your hard drive to a 2:1 or 1:1 interleave to take full advantage of the performance gain.

All but one of the accelerators offer some support for large screen displays. Most offer a connector that works with a third-party display, while the PROboard has extended display support built-in.

Important Considerations

The extra circuitry on the board and its effect on air circulation inside the Plus makes adding a fan mandatory. Most of the accelerators come with a fan; a few require you to purchase your own. Some also use a fair amount of power, and these either include or offer a power supply modification kit. Installation is not recommended for the faint at heart in any case, and a few manufacturers require dealer installation.

A short word about the installation process. Most of these products use a clip that attaches over the 68000 installed in the Plus. If you move your Mac from place to place often, this clip may come loose. Some manufacturers offer a "pin-modification" option, where pins are soldered onto the 68000 to allow direct attachment of the board. This is not a recommended end user procedure, but may be something you want to have done to ensure trouble-free use of an accelerator.

For some the bottom line is performance. Generally there are three tiers of improvement. The first level is offered by adding a 16 MHz 68000, the second by using a 68020 with a RAM cache, and the third by using a 68020/30 with 32 bit RAM on the accelerator. If you want numbers, then here are some rough estimates of improvements over vanilla Plus performance, based on real world uses, not benchmarks of math intensive programs.

16 MHz 68000	68020 w/cache	68020 w/32 bit	68030 w/32 bit
68881	68881	68882	
150%	225%	350%	4-500%

What's For You?

Now to put all of this in perspective.

If you're planning on buying an accelerator, you should decide whether you're planning on this purchase as an interim measure until the SE/30 or IIx family comes down in price. If this is the case, you can offset the cost of buying fast RAM for the 68020/30-based accelerators, as you will be able to use that memory in newer Macs when you buy one.

Also, if you need the maximum performance from your Plus, one of the 68030 accelerators will give you performance equal to or better than that of an SE/30. If cost is a factor, the Radius accelerator gives the best price/performance, as it requires no additional purchases, and it places well up in the speed improvement range.

You should also consider compatibility with large screen displays. If you already own a large screen display, or have a specific model in mind, check with the manufacturer for the most current compatibility list.

The same applies to hard drives. Some manufacturers (notably Radius) maintain lists of non-compatible hard drives. Get assurances from the suppliers of both the hard drive and the accelerator as to compatibility.

If System 7.0 compatibility is an issue for you, you'll need an accelerator with a 68030.

Finally I've compiled a list of accelerator cards for the Mac Plus. This is not a completely comprehensive list, but I've excluded only the most expensive units. The pricing is current, and is based on manufacturer's list prices. Be careful in comparing prices, as some boards (Radius; Siclone sort-of) include memory while most do not.

If you've expanded the memory on your Plus, you may be able to migrate that memory to the accelerator. Also keep in mind that the Novy and Total Systems boards can use either a 68020 or 68030, and can be upgraded.

The price at the bottom of the list is for a system with CPU, FPU, and fan (I've added $100 for a fan for the MicroTech). It does not include the cost of any additional memory (the MicroTech static RAM is not included in the bottom line). You should keep in mind that the price for FPUs varies from source to source; a little shopping around can save you well over a hundred dollars. Happy speeding. ■

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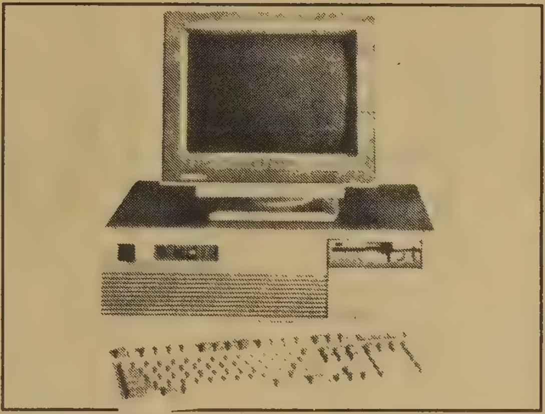

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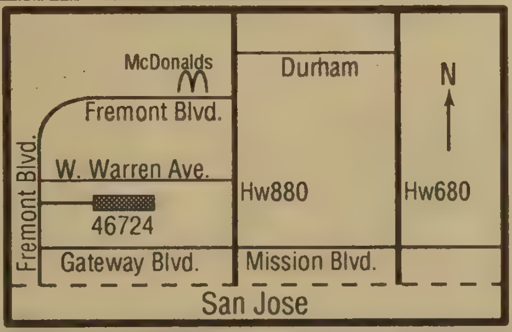


Adobe Type Manager

Smooth Fonts For The Budget-Minded

By Carol S. Holzberg

Is PostScript envy getting you down? Do you wish you could add character to on-screen displays of your PostScript outline fonts? Do you dream of generating high quality PostScript-like printouts on a Hewlett-Packard DeskWriter or Apple's ImageWriter and LaserWriter SC?

If so, Adobe Type Manager (ATM) may be just the software solution you need. It greatly improves on-screen display, and enables non-PostScript printers (including the 9-pin dot matrix ImageWriter) to output hard copy rivaling snazzy PostScript LaserWriters.

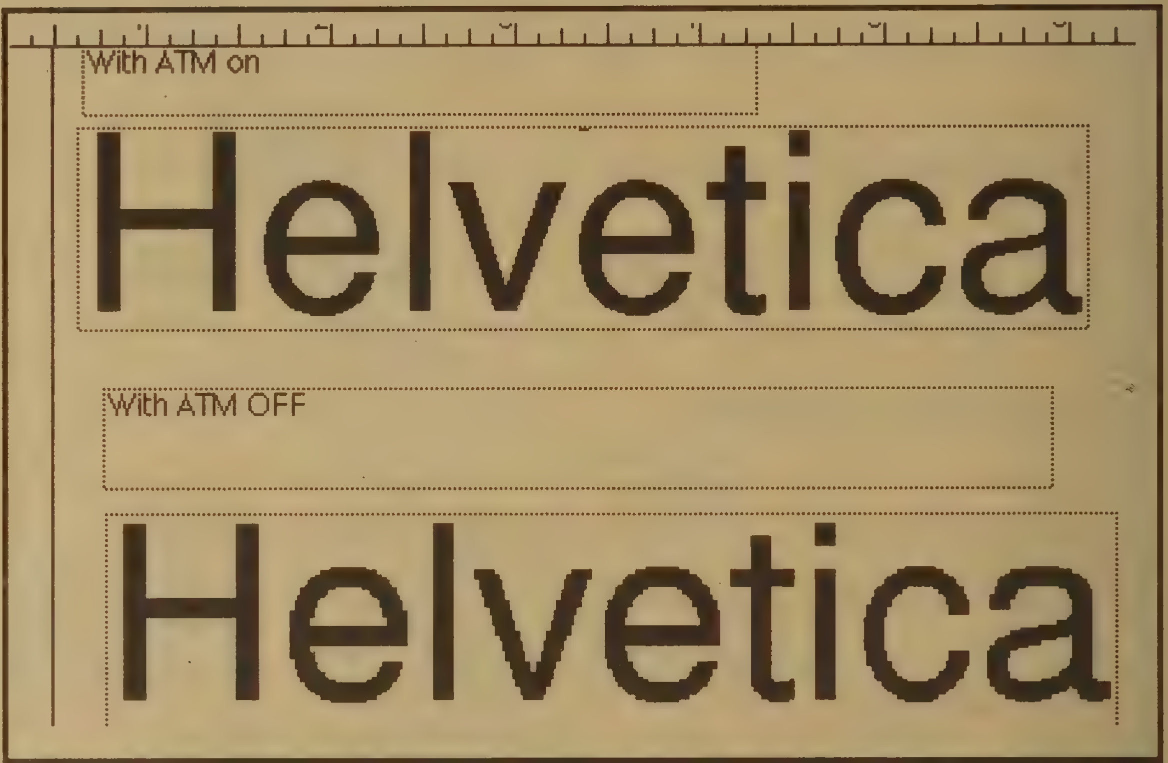
Installation

The ATM package consists of an ATM Control Panel device (CDEV), two versions of the ATM INIT (start up document), 13 outline printer fonts in four font families (Times, Helvetica, Courier and Symbol), and a folder of corresponding bitmapped fonts. ATM users drag the CDEV, one INIT, and printer fonts to the System folder. They run the Font/DA Mover to install the bit-mapped fonts into the System (if these are not already present). If you own a Macintosh Plus or SE, you drag the ATM CDEV and 68000 driver. With an SE/30 or any Macintosh II, you must install the CDEV plus the ATM 68020/30 driver.

When installation is complete, users should choose Control Panel from the Apple Menu, follow on-screen prompts to personalize their copy of the program, and restart the machine. The ATM Control Panel also provides options for turning ATM on or off, controlling line spacing or character shapes with ATM on, and adjusting the amount of System memory available for font information (font cache). It's necessary to restart the Macintosh any time you make changes in Control Panel settings. You'll be able to tell when the ATM INIT is off at start up because its icon appears on the "Welcome to Macintosh" screen with a bold line drawn through it.

Using ATM

Once installed, ATM operates transparently in the background. It reads Adobe's PostScript Type 1 outline (printer) fonts and bit-mapped screen fonts resident in the System folder to produce vastly



PICT shot (above) of a "before" and "after" rendering of the Helvetica screen font in 96-point type. Notice how the scaled characters are much less ragged when ATM is on. ATM provides the same enhanced output on ImageWriters and other non-PostScript printers. PostScript output is (below) smoother and pricier.

If you're saddled with a non-PostScript printer, ATM offers enhanced computing power for a very reasonable price. Until System 7.0 is released and its bugs are worked out, ATM is the only way to go.

Carol S. Holzberg, Ph.D, Shutesbury, Massachusetts is a computer journalist who writes and consults on a variety of computer-related topics. She is currently saving for a top-of-the-line Macintosh IIci.

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ATM operates quickly on any Mac equipped with a single megabyte of RAM. This minimal memory configuration is good news for all Mac users who worry about compatibility with Apple's "Royal" outline font technology, slated for release with System 7.0.

improved display images of PostScript typefaces. It generates high-quality, smoothed screen bitmaps in any size that you specify, even if the particular point sizes you request are not in the System file.

The difference between QuickDraw bitmaps and ATM's outline printer font display is particularly noticeable at large-point sizes. There are no more scraggy or uneven letters. On-screen text closely resembles printed output. However, with fonts in 12-point size or less, the display quality is not as smooth. Those conventional display jaggies still may appear.

Adobe Type Manager ships with disk versions of only 13 fonts resident in the LaserWriter II NT/NTX. Adobe Type Manager's companion font package, ATM Plus Pack, offers an additional 22 PostScript outline fonts in seven popular font families (Palatino, ITC Bookman, ITC Avant Garde, New Century Schoolbook, ITC Zapf Chancery Medium Italic, ITC Zapf Dingbats, and Helvetica Narrow). The Plus Pack selection completes the set of 35 outline fonts resident in the LaserWriter II NT/NTX.

Getting ATM to work with any Plus Pack font is an easy task. Simply drag the desired outline fonts into your System folder, activate the Font/DA mover to install the corresponding bitmapped fonts, and restart the Mac. You should install bitmapped fonts in as many point sizes and styles as room allows. At a minimum, make sure you've selected roman (plain) font in 10- and 12-point sizes. Suitcase II or Master Juggler users can place outline fonts in a separate folder with any open suitcase. Both ATM and the ATM Plus Pack offer quick reference character set charts showing Option and Shift-Option Key Caps, plus composite and extra characters.

ATM operates quickly on any Mac equipped with a single megabyte of RAM. This minimal memory configuration is good news for all Mac users who worry about compatibility with Apple's "Royal" outline font technology, slated for release with System 7.0. Apple's new System software will require 2 Mb to operate. When it ships, it's not expected to support the variety of Type 1 printer fonts currently available. ATM, on the other hand, provides users with scalable font options now, without requiring them to purchase additional hardware.

ATM is a nifty utility for all those who work Type 1 fonts on non-PostScript printers. The current version supports neither PostScript graphics nor the Type 3 PostScript fonts generated by programs like Altsys's Fontographer. But if you're saddled with a non-PostScript printer and you're committed to using the variety of Adobe's Type 1 outline fonts, ATM offers enhanced computing power for a very reasonable price. System 7.0 may provide users with new options that make ATM redundant or obsolete. But until System 7.0 is released and its bugs are worked out, ATM is presently the only way to go! ■

SYSTEM REQUIREMENTS: Macintosh Plus or later, 1 Mb RAM; hard disk or two floppy-disk drives; System 6.02 or later; Font/DA Mover 3.8 or later; ImageWriter (I, II, LQ), LaserWriter IISC, Hewlett-Packard DeskWriter, or Adobe PostScript printer.

COMPANY: Adobe Systems Inc., 1585 Charleston Road, Mountain View, CA 94039-7900; (800)83-FONTS or (415)961-4400

PRICE: ATM $99; ATM Plus $198

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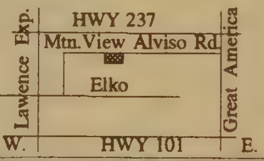

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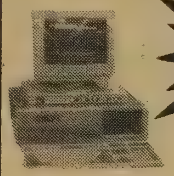

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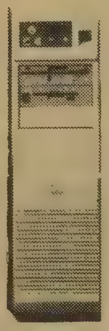

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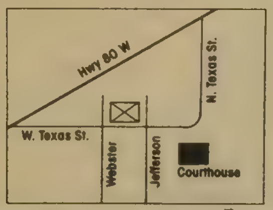

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MAC @ WORK

BMUG

BY DAVID MORGENSTERN

BMUG Gurus Get Out The Crystal Ball

It's tabloid guessing-game hour at BMUG this month. We looked up at the moon from the office, but the light from the movie theater marquee down the street hid the stars—how were we going to divine the events of the new year? I suggested pouring a cup of tea leaves on the motherboard of the Macintosh IIcx, and then observe the colors and twitches of the monitor. This motion was narrowly defeated.

BMUG's 1990 Augury

- **Bernard Aboba** (Board member and engineer)

UNIX Predictions: The 1990s will be known as the decade of distributed processing. I predict that by 1991 a UNIX variant incorporating concepts from Mach will be adopted by a major vendor, possibly IBM or Sun.

I predict that Sun, Toshiba, and several Taiwanese firms will release $5,000 SPARC machines. SPARC and Intel's 80386 and 80486 will establish themselves as the standards of the UNIX world.

Shrinkwrapped UNIX applications will become available, and their developers will concentrate on machines utilizing these processors.

DEC will continue to flounder, particularly against the assault of the SPARC clones. The slide at Data General, Prime, and Wang will also continue.

In 1990, NeXT will be working on (and might even announce) a cheaper, more market-oriented version of the cube. The deal with NeXT begins to look like a disaster for Businessland, which will bring another workstation into the fold.

Overall, 1990 will be remembered as the year that UNIX prices came tumbling down.

Non-UNIX predictions: The release of System 7.0 will leave over 40% of Macintosh users behind, mostly because they will not want to pay the rather hefty upgrade fees for their applications.

Interapplication Communication (IAC) will be adopted slowly by developers; they'll need examples on how applications should be done first. We will have faster and faster Macs, and some kind of Macintosh batch language, but the conversion to the new Mac computing environment will long and difficult.

Copyright © 1990 by David Morgenstern. All rights reserved worldwide. *David Morgenstern is a Bay Area "MacNurturer" and BMUG member. David is DMORGENSTERN on GEnie and himself at (415)549-BMUG,*

Apple's control of the peripheral market will continue to slip. Color PostScript will take another step towards affordability.

1990 will see Windows 3.0 released, and recognized as a major improvement, both in the "look and feel" department and in terms of memory management. Major programming tools will be released for Windows, and it will be recognized as the graphical interface standard for PCs.

The 1990s will bring major advances in telecommunications. By the end of the decade, over 30% of

> **"...In 1990, NeXT will be working on (and might even announce) a cheaper, more market-oriented version of the cube. The deal with NeXT begins to look like a disaster for Businessland, which will bring another workstation into the fold."**

HOT TIP

Have you installed your Programmer's Interrupt Switch?

If not, find it and install it right now! The programmer's switch is a small piece of plastic that looks like a dental appliance. It pushes two little switches hidden inside your Mac. Depending on the flavor of your Mac, it fits on the side or the front of the case.

The device has two buttons and two functions. The Reset button on the switch can turn the Mac off and on with one push. If your Mac bombs out a lot, or hangs or freezes, hitting this switch will save wear and tear on the power switch in the rear. It's also easier than fighting your way through the cables and cobwebs in the back. The new Mac IIcx and IIci models have the switches in front, where they should have been all along!

The other button, the Interrupt switch, puts you in touch with the machine behind the screen. Pressing this button allows you to talk to the Mac's computer chip directly, interrupting whatever dialogue your software and you had going. On this level, the Macintosh doesn't speak our shared language of mouse clicks and menu selections.

Apple's line on the switch is: "If you aren't an applications developer, do not install the switch. Installing it and then using it incorrectly can result in loss of data." They're right! If you reach back and hit either switch without purpose, you'll be unhappy.

But there are times when you'll want the switch to be there. Perhaps your Mac is requesting the disk that the dog just ate and you're on a deadline. A friend of a friend, who's a Mac-nut, will get on the phone and will need you to have the programmer's switch installed to save your data. That's not the time to be hunting through your socks and paper clips for stray pieces of your computer! Don't tell me you'd rather write than switch?

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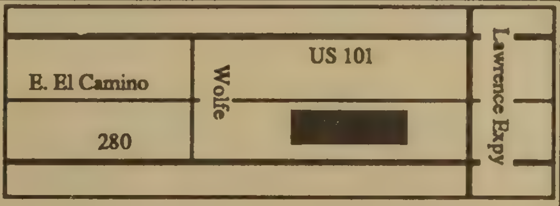

all phone calls will be made over cellular systems. Wireless networks will be very popular; machines as powerful as mini-supercomputers will be handheld. The 1990s will be known as the miniaturization decade, with computers and sensors getting smaller. As usual, large established companies will miss out on many of these trends.

- **Steve Costa** (Technical Guru)

In 1990, Apple will introduce a lower-cost Mac, but not *the* low-cost Mac. Apple will soon begin offering a standard one-year warranty on all Macintosh models, but older Macs will not be supported in the warranty extension. These machines will still need to be covered by AppleCare.

- **Avi Rappoport** (Board member and former librarian)

Apple will release System 7 at the end of the year, giving enough development time for a few products to use some of its power. Lots of people will *hate* the new System Software, and there will be flames all over the newsgroups and BBSes because change is so darn scary.

Apple's price for RAM will drop from hundreds per megabyte to a more reasonable, although still excessive, sum.

Apple will announce, but not ship, a low-cost Mac. Better make that "Apple will announce plans for..."

Guy Kawasaki will go to work for NeXT, but will leave before the end of the year.

- **Bill Woodcock** (Network Administrator and student)

This will be the Macintosh Year of Voicemail. We already know that Microsoft Mail 2.0 includes HyperCard-driven voicemail. CE Software's QuickMail will have voicemail from directly within its desk accessory. TOPS has announced (from the grave) that the real version of InBox will finally ship with "unannounced enhancements"—so what other conclusion can we draw?

One more major reorganization at Apple, and two or three little ones.

System 7.0 will be released on time, and will run on a Mac Plus, with one or two megabytes of RAM, but the average user won't notice the difference.

1990 will also be the Year of Upward Compatibility & Connectivity—or something like that. Apple will finally get their SQL drivers out, and third party developers will finally turn out software supporting the Apple's serial toolkit, causing the price on serial expansion boards to drop.

The use of Macs for 3270 emulation will become commonplace, and a popular telecommunications package will support NCSA Telnet, making Macs popular as UNIX terminals on Ethernet. Other developers will try to base flashy new communications packages on the Communications Toolbox, only to find out that it supports 120 baud TTY standard communication only and doesn't support a standard ASCII character set, or the AT-command set.

- **Alex Lau** (Board member and student)

With the introduction of the F-19 (the high-performance Macintosh workstation, aka the IIxi), the shipping of MacX, and the upgrading of A/UX, Apple will begin the slow destruction of NeXT. The final blow will come when Businessland cancels its contract with NeXT late in the year due to low demand.

1990 will be the Year of Software. Many enhanced versions of our favorite programs will come out—Hello PageMaker! Several brand new products will try to take over the low end of the desktop publishing, spreadsheet, word processing, and database markets. More companies will come out with Personal Information Managers, and more people will ignore them.

Of course, the introduction of System 7.0 will delay the updates of large numbers of software products until the third or fourth quarter. System 7.0 won't work correctly until version 7.0.3, anyway.

The Macintosh will continue to make inroads into the business market. To help this significantly, a brand new, ultra-fast multi-user relational database with a Mac-like interface will come along late in the year or early 1991.

Apple will broaden its lead over IBM in computer sales. The Apple II line will get a boost when Apple unexpectedly comes out with an extremely lightweight and relatively powerful laptop based on the IIe.

- **David Morgenstern** (Board member and BMUG CheerLeader)

IBM will run ads calling on multimedia users to "break away from the tyranny of the Macintosh standard." The ads will feature an Orwellian scene, with faceless, rainbow-clad users watching a movie screen-sized demonstration, featuring a look-alike of Jean Louis Gassée. A glowing, blue-suited man will hurl the complete *OS/2 2.0* manuals at the giant screen, shattering it into a million bits.

Apple will bring out several new Macintosh models next year, even though the Year of the CPU was *last* year. The most interesting will be a computer that can be used while sitting on the toilet, called the Potty Mac. It will feature a special slot for a fully functional voice/serial cellular telephone, as well as a kleenex holder—for emergencies.

After all the problems with hard disks that plagued them last year, Apple will reissue their one hard disk model that worked reliably—the turtle-slow, serial HD20. It will be marketed as an alternative for users that "want something there, after they finally get wherever they're going."

Many new viruses will infect all computers in the new year—I didn't need a crystal ball for that! One vicious virus will attack users of the Mac's 32-bit color. It will steal the eight bits reserved for fancy effects. This will be the first international extortion virus, requiring payment of a dollar into a private Swiss bank account to recover the use of the missing bits. It will be called the **8-bits a dollar virus.**

Apple Computer, Inc. will stun the computer industry by requiring that all Macintosh users sign non-disclosure agreements. Any oral, written, or electronic communication of system software operation, hardware specifications, or the mere fact that you're using a Mac will require approval from Apple's legal department. Users will develop complex secret signals to clue each other to their Macish nature and CPU preference. Look for people that have 3 1/2" disks in right or left pockets dressed in black and white. Multi-megabyte users will have a earring for each SIMM. Ouch!

The trend towards very long and silly software names will continue. This is necessary since all the shorter names have been gobbled up by the myriad of previously written PC programs. Look for more **Draw It Again, Sam**-type names like, **Type With It—You'll Like It**, and **Naked Mud Spreadsheet Mania in Color!** Late in the year, cosmetic companies will purchase several of the smaller software publishers, and push the programs as electronic spinoffs of perfumes and bath oils. Prince Matchabelli Inc. will lead the way with **Omnis Obsession pour homme,** the multiuser relational database and fragrance.

- **John Q. BMUG** (a fellow Mac traveler)

The Advanced Technology Group at Apple will release its QuickDraw accelerator chipset to the more workaday engineers in Cupertino. Several products based on these chips will appear, including a color graphics screen accelerator, a screamingly fast, non-PostScript personal laser printer, and a too-expensive upgrade for IIci and F-19 owners. But people will pay, because the perceived performance boost will make the Mac seem young again.

There will be a 386-based Amiga with a blitter chip that will run System 7.0, OS/2, Windows, and some generic UNIX, but even though it's fast, looks great, and is cheap, no one will care. Apple II owners will still languish in the backwaters, at least until sales of Apple II family products drop below the $1 billion mark. Then, maybe, Apple will do the right thing and spin off Forever, Inc.

Apple will make an important announcement at National Apple User Group Conference this April, and user groups will finally be recognized as providing useful services. However, most user groups will fumble the ball, and third-party commercial support services will take off.

Apple Pacific will spend way too much time and money negotiating its way into the corporate offices of Japan, only to discover that NEC, Toshiba, and Fujitsu are eating the Macintosh for lunch with friendly enough UNIX-based systems (see Bernie's predictions, above). Then there will be much hair-pulling, breast-beating, and moaning.

Bits and Bytes

- A big thing in the San Francisco Bay Area (and across the US) are factory outlet stores. They are retail outlets run by manufacturers to get rid of unwanted and out-of-season merchandise. Most outlet stores are in the apparel or sporting goods trades, but computers are starting to get into the act.

Jasmine, the San Francisco hard disk manufacturer, has opened the first computer-industry factory store. They are featuring "store specials," including demonstration models, dusty stock from the back room and some real "bargains," like their old "three-pass" chunky planar 24-bit color video cards manufactured by RasterOps, which are totally incompatible with everything. Know what you're buying.

They will also sell you some of Jasmine's latest goodies.

"Have I got a deal for you my friend. This hard disk was used by my grandmother, who only used five megabytes, playing games..."

Shareware Spotlight

Among the great things about a color Macintosh are the colors. But color users want to see everything in hues—the desktop pattern, icons, cursors, the works! There are two shareware programs that will take you partway to the rainbows.

ColorFinder is an INIT that was written by Chris Derossi, an Apple employee, at the last MacHack Convention. This is an annual event attended by

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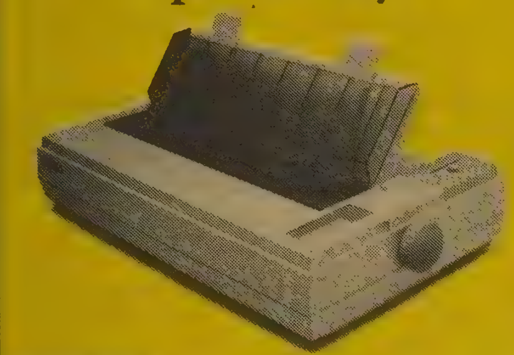

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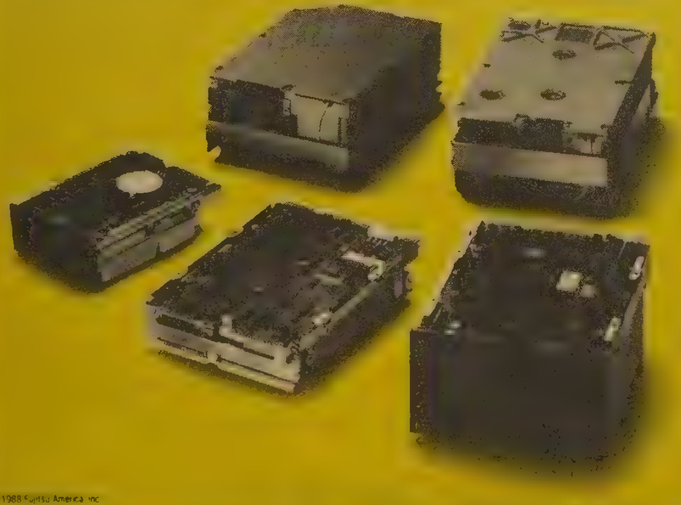

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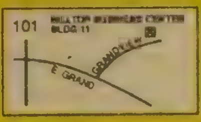

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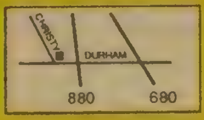

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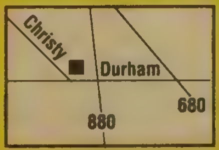

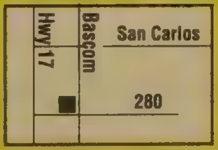

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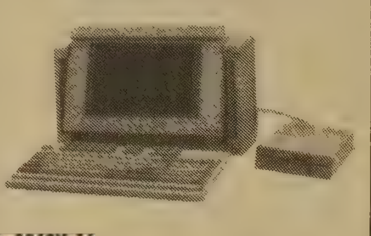

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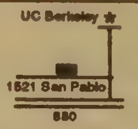

Hours
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S 11:00-4:00

WHAT'S HAPPENING?

Check the MicroTimes Calendar of Events in this issue for computer-related classes, seminars, and shows in your area.

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MAC @ WORK

Macintosh programming geniuses from around the world. **Icon Colorizer 1.0** is another similar startup document by Robert P. Munafo.

The INITs allow your applications, documents, folders, volumes, and other icons to be displayed in full color. Users can create their own color icons with **ResCicn**, by Frédéric Miserey of Reims, France, which is a color icon editor.

These programs and more are found on BMUG Paris 20 disk ($4).

Upcoming Events:

February 21 BMUG West meeting at the Exploratorium in San Francisco.

February 22 Software Ventures' Microphone II version 3.0, ON Technology.

March 1 Cliff Stoll, famous computer spycatcher, author and BMUG member.

March 8 SoftView MacInTax, PLI Jutebox (hardware).

March 15 Scott Kim's Letterforms & Illusion, Mobius Technology's wireless mouse.

March 22 To Be Announced.

March 28 BMUG West meeting at the Exploratorium in San Francisco.

March 29 SuperMac *PixelPaint Professional.* ■

What Is BMUG?

BMUG is a non-profit educational corporation dedicated to collecting, evaluating and disseminating information about computers using a graphical interface. For a while that meant the Apple Macintosh but now includes other makes, models and operating systems, including the NeXT best thing.

Like any growing organization, it is many different things to its 8,500+ international membership. BMUG supports many Special Interest Groups (SIGs), an eight-line Bulletin Board System (BBS), free HelpLine, software library, weekly meetings, and much more. BMUG also puts out a semi-annual 400+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6:00 to 9:00 (or whenever we finish), in the Physical Sciences Lecture Hall on the U.C. campus. BMUG West is a meeting held monthly in the Exploratorium, San Francisco's science museum.

The BMUG HelpLine, (415)849-HELP, and our fax number, (415)849-9026, provide technical assistance and telephonic hand-holding during business hours (11:00 a.m. - 5:30 p.m.). If your question can't be answered on the spot, we try get you in touch with someone that can help. Of course, not every problem can have a happy ending—but we try.

To get some further information about BMUG, please write to: BMUG, 1442A Walnut Street #62, Berkeley, CA 94709. If you prefer to phone our business office call (415)549-BMUG, or FAX (415)849-9026.

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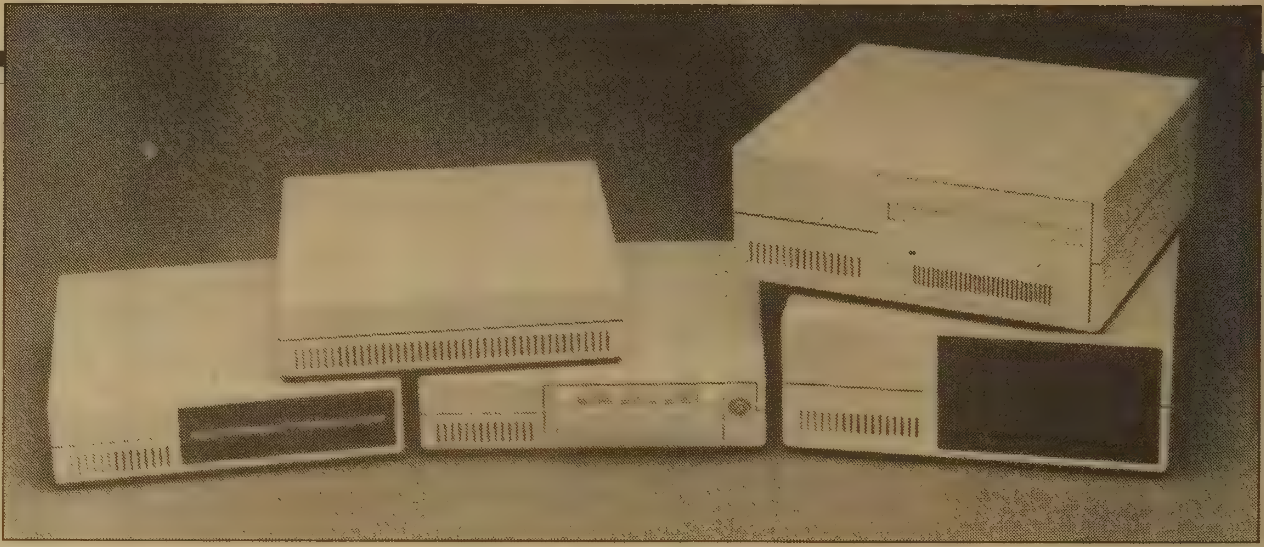
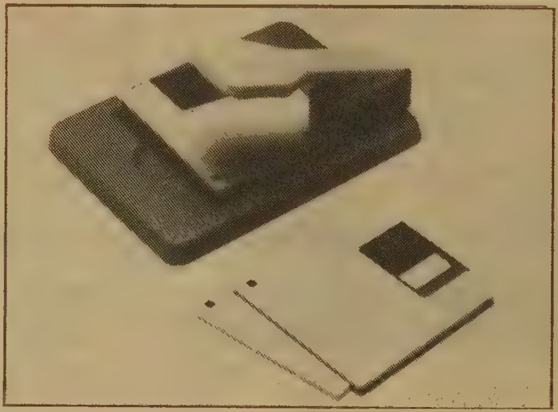


Drive Enclosures For PC And Mac Include SCSI Host Adaptor

Connector Resources Unlimited has announced a series of enclosures for the Macintosh and PC compatibles with SCSI host adaptors. They enable the user to add fast and versatile storage to any SCSI bus in an external, portable configuration. Cartridge tape drives, CD-ROMs, magneto-optical drives, and many other devices can be quickly and easily mounted both separately and in combination in the CRU enclosures. The enclosures are available in two basic styles: half-height and full-height. The half-height enclosure will accept either 31/2 inch or 51/4 inch drives, and the full-height unit will accept either a 51/4 inch full-height drive or two 51/4 inch half-height drives. An external BCD switch provides easy selection of the SCSI address. Both styles are also available with a standard cut-out to accept devices requiring front panel access. CRU, Incorporated, 753 Ames Avenue, Milpitas, CA 95035. (408)942-9077.



Double Your Disk Storage With DoubleDisk Converter

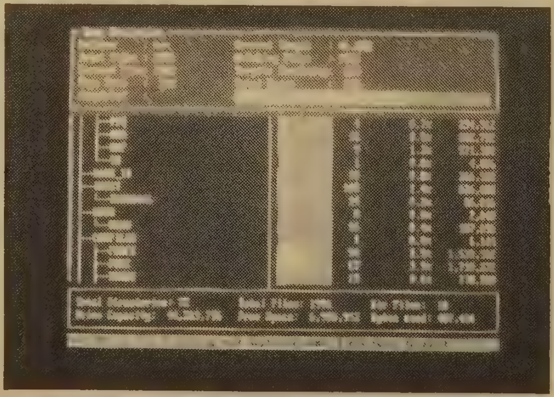
DoubleDisk Converter is a precision mechanical punch that allows users to format and run inexpensive 720 K 31/2 inchfloppy disks in 1.44 Mb disk drives. DoubleDisk comes with an unconditional one-year guarantee to exchange any converted 720 K disk which does not format and run at 1.44 Mb with a replacement 1.44 Mb disk. High density 1.44 Mb disks, which are three to four times the price of 720 K disks, are used in most PS/2 systems as well as many 286 and 386 AT-compatibles and portables, Apple's SuperDrive, and some models of Amiga PCs and Sun Microsystems' workstations. ($39.95) Biological Engineering, 2674 E. Main St., Ventura, CA 93003. 1-800-537-4226.

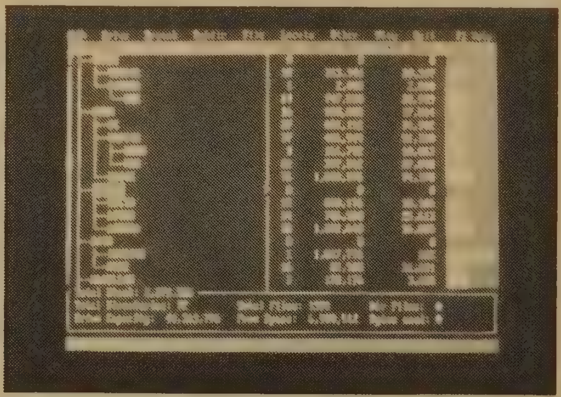
Portable CD-ROM Comes With Battery Pack

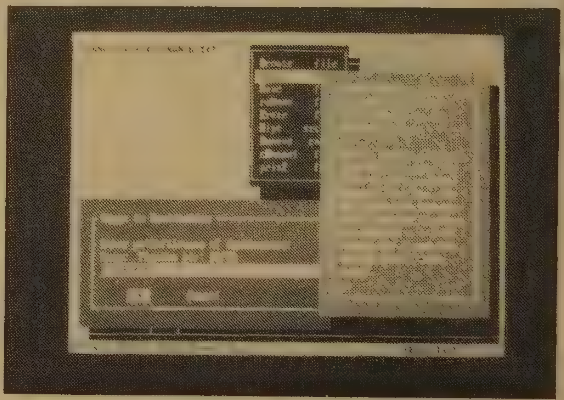
The Porta-Drive from Custom Design Technology, Inc. is a small, light-weight CD-ROM drive for portable and stationary PC and Macintosh computers. Industry standard media and cartridge of this Toshiba-made drive provide universal hardware compatibility. The massive 600 Mb storage of the Porta-Drive allows instant access to large databases such as legal and medical libraries, parts catalogs, and marketing data. A SCSI interface allows seven drives to be daisy-chained or linked. ($895) CD Technology, Inc., 780 Montague Expressway, Suite 407, San Jose, CA 95131. (408)432-8698.

Disc Director Organizes Hard Drives

Disc Director is a new utility program by Athena Software that eliminates wasted disk space by finding unused duplicate files, empty and inefficient directories, and orphaned files. This utility is designed to aid the user in analyzing, planning, and implementing a strategy of hard disk reorganization. Completely menu-driven by easy to access pull-down menus, *Disc Director* is fully integrated with on-line, context-sensitive help. A concept unique to *Disc Director* is the idea of comments. The user may attach comments to directories, files, and even drives. Comments can be 78 characters long and can be attached in moments. ($79) Athena Software, 663 West Aspen Way, Louisville, CO 80027. (303)665-9569.







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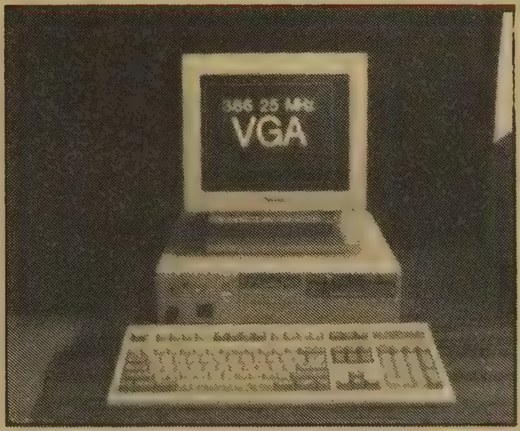

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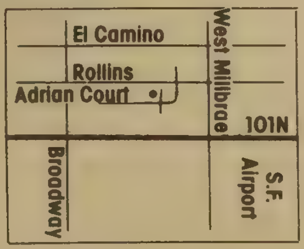

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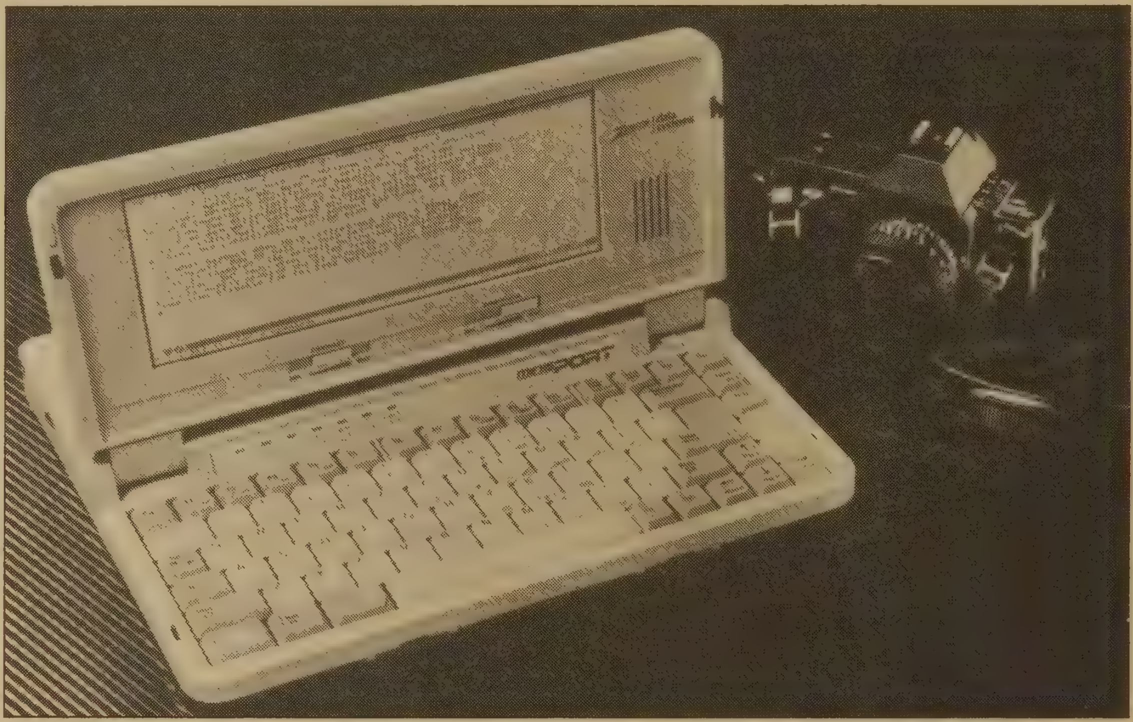
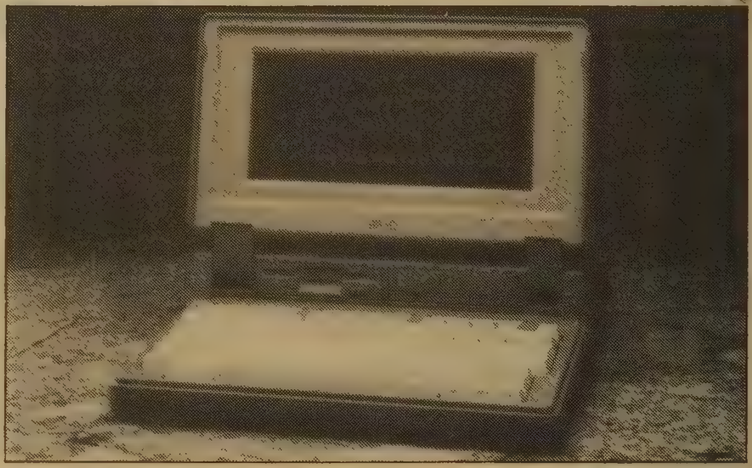


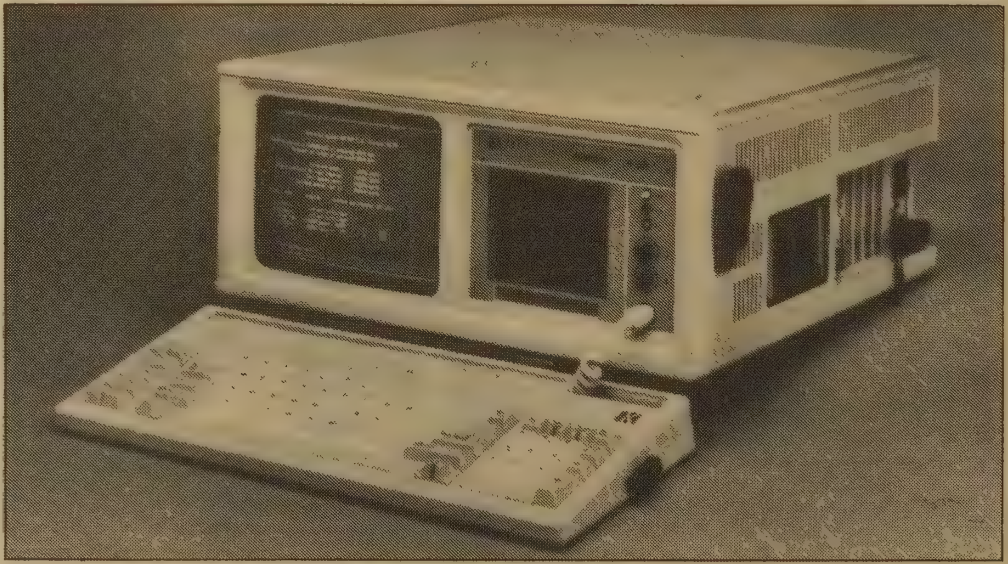
Zenith Introduces Its Smallest Laptop Ever

The MinisPort is Zenith Data Systems' entry into the "notebook" computer market. This laptop weighs only 5.9 lbs including removable battery, and stands about one inch high. The MinisPort is also the first notebook computer to feature the DayBright screen that can be read in any light, from intense sunlight to complete darkness. This new PC also is the first system to use 2-inch MiniDiskettes, which hold 720 K of data. The MinisPort can operate for more than three hours using an easily removable nickel-cadmium battery pack, which recharges in four to six hours. ($1999/2799) Zenith Data Systems, 1000 Milwaukee Ave., Glenview, IL 60025. (312)699-4848.

Entry-level Laptop From GRiD

GRiD Systems, makers of heavy-duty DOS-compatible laptop computers for military and industrial applications, has broadened its line of portable machines by introducing the GRiD 140 XT, a battery powered, NEC V-20-based laptop. The fully featured laptop is designed for field-based professionals who need an entry-level, dual-drive machine. The 140 XT comes standard with both a 20 Mb hard drive for users who need to access data on the road, and a 31/2 inch, 720 K floppy drive for easy data input. The computer, which runs at 8 MHz, includes a removable, rechargeable NiCad battery with a life of two to three hours. ($2595) GRiD Systems, Inc., 47211 Lakeview Blvd., Fremont, CA 94537. (415)656-4700.





Industrial Strength Portable From Kontron

Kontron Electronics, Inc. has announced a line of industrial computers, new 286- and 386-based AT compatibles designed specifically for use in harsh, rough, dirty, and electrically noisy environments. Compatible with all MS- and PC-DOS software, Kontron's industrial computer systems are built with heavy gauge metal housing shielded against dirt, dust, and water splashes. All Kontron industrial computer systems provide filtered positive pressure cooling, over-voltage protection, vibration-absorbing shock mounts for all moving parts, and automatic temperature monitoring. At about 35 pounds, the IP286 (also available with a 386 processor as the IP386) is readily transportable and totally self-contained. It has an integral 9-inch high-res monochrome monitor with Hercules 720 x 348 graphics and has both floppy and hard disks in 3 1/2 inch format. The keyboard is connected to the system with a heavy piano hinge which allows it to fold out and provide a stand-up workstation when the IP286/386 is placed on its back panel, monitor facing up. The IP286 runs at 10 MHz with zero wait state memory, and has a Norton SI rating of 11.2. The IP386 runs at 20 MHz, also with zero wait state memory, and has a Norton SI rating of 23.0. Kontron Electronics, Inc., 630 Clyde Ave., Mountain View, CA 94039-7230. (415)965-7020.

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USER GROUP NETWORK

BY MARY EISENHART

Brainstorming With The Experts, Checking Out The Computer Faire

Before we get to the preview of coming attractions—please note the announcement on this page concerning upcoming changes in our user group/BBS listing policy, and note that if you want your listings to continue appearing in *MicroTimes* after the next (March) issue, the time to send us a new one is **now.**

Moving on—our old friend **Ed Niehaus** announces that the **Software Entrepreneurs' Forum** will be hosting its marketing seminar **"Software Marketing Magic: The Secrets Revealed"** on March 17 in San Mateo. Seminar topics range from "Who needs marketing anyway?" to "Which sales channels to use, and when." Speakers include **Marc Canter** of MacroMind, **Dan Farber** of *MacWeek*, **Charlie Jackson** of Silicon Beach, **Richard Skee** of CE Software, **Jim Willis** of Adobe, and **Guy Kawasaki**, author of *The Macintosh Way*, who describes himself as "unemployed." Speaker-audience interaction is heartily encouraged. Fees range from $150 to $250 depending on whether you're a SEF member and how quickly you register, so waste no time—call Ed at (415)626-0651 for more info. You can also send email to Ed at **niehaus@well.com** if you're on uucp.

Ed, who's a public relations person by trade, will also be hosting a panel at the upcoming **West Coast Computer Faire.** The panel is part of the **Startups and Spinoffs** series of conferences at the Faire, and is entitled "Public Relations for Small High-Tech Businesses." Somehow or other I have wound up on this panel, which is scheduled for 12:45-2 pm on Friday, March 2. Hope to see some of you there.

As readers of *MicroTimes* will note, the once-proud West Coast Computer Faire fell on bad times last year. Most in attendance allowed as how they'd seen more excitement at the local swap meet; its own founder, **Jim Warren**, outspokenly railed against his brainchild's sorry state, and **John Dvorak** wasn't exactly thrilled either.

This year seems to represent a serious effort by **The Interface Group**, the Faire's owners, to restore some of the prestige and excitement the show once enjoyed as the premier user-oriented computer expo. Exhibitors range from prominent software vendors like **WordPerfect** and **Autodesk** to service providers like **GEnie** and **Prodigy** to local retailers to a generous array of user groups. **Borland, Autodesk, Microsoft, Wolfram Research**, and other software leaders will be demonstrating their products in special demos, as will cellular phone suppliers, scanner providers, and other specialists.

The conferences, one of the Faire's historic strengths, reflect a lot of recruiting effort and look pretty promising (even if PR for Startups isn't your main interest). Xanadu's inimitable **Ted Nelson**, Father of Hypertext, whose current wonderful title is Distinguished Fellow at Autodesk, will deliver the keynote address at 10:30 am on March 1; Ted has chosen for his theme: "Toward a New Clarification," which is likely to mean just about anything and be worth hearing. **Jerry Pournelle** does his annual "World According to Jerry Pournelle" session at 12 noon on March 3. MicroAge's chairman **Alan Hald** will speak on "Virtual Reality: The Next Revolution"; whether this portends the arrival of VR kits at MicroAge dealers is a matter for speculation. T/Maker President **Heidi Roizen** will speak on "Software Solutions for the Home Office"; FOG's Executive Director **Gale Rhoades** will discuss "Hypertext and On-Line Information Management: **Jan Lewis** and **Steve Rosenthal** each have multimedia sessions, **Dr. Ron Harwin**, whose treatise on healthy computing appears in this issue, will offer helpful tips, and game wizard **Chris Crawford** has a session for prospective game designers.

Well, you get the idea. This is probably worth checking out. The Faire runs March 1-4 at Brooks Hall/Civic Auditorium in San Francisco, and you can call The Interface Group at (617)449-6600 for further details (many of which are still TBA as we go to press, so expect more conferences and exhibitors).

We now have a nice new **MCI Mail** account for your greater convenience in communicating with us. You can reach us there as, surprisingly enough, **MICROTIMES**, and we look forward to hearing from you. If MCI isn't for you, you can send US Mail to User Group Network, 5951 Canning Street, Oakland, CA 94609. Send faxes to (415)652-4618 or (213)467-5486. Email can be sent to **microx** on **The WELL** (415/332-4335), **MICROTIMES** on **MacNET**, or **{pacbell, hplabs, ucbvax, apple}!well!microx** on uucp. Thanks, and see you next month. ■

Changes Ahead: Don't Be Left Out

In a continuing effort to provide you with timely, accurate and manageable information about user groups, professional associations, and bulletin board systems, we're instituting some changes. Beginning with our April issue, we will be featuring all-new user group and BBS listings. **If you want us to keep listing your group or board, send us a new listing now!**

Free user group and association listings are limited to the group's name and a ten-word description, **including the mailing address and contact phone number.** They will be deleted at six-month intervals to ensure timeliness and accuracy of information.

Free BBS listings are also limited to the board's name, sysop's name, and a ten-word description including parameters, baud rate and phone number. Because we have an ongoing problem of boards shutting down without telling us, much to the annoyance of would-be callers and the phone number's new owner alike, we will delete these listings after they've run three months.

You can update or renew your listings at any time.

If you want to run a longer listing, please check our attractively priced classified ad section.

Please note that any changes not appearing in this issue will not appear until the April issue.

Thanks!

—MicroTimes editors

Bulletin Boards

INTERNATIONAL

Cassia Express. (065)344-9163. 300/1200/2400 24 hrs. Singapore. Sysop: N.M.Rahman.

FidoNet Argentina. (054) (011)541-22-419. 8-N-1 3 pm-11 am PST. The 1st fido node in Argentina has over 450 subscribers. Specializes in issues from S.A. PD software library to d-load. Sysop: Pablo Kinman.

Janis II. (03)255-8856. 24 hrs, 1200/2400/9600. Japan Newsbytes, USA Today, InfoMat magazine, Online Digital Music Review. Over 500 megs info & D/L Pgms on HDD. Sysop: Pete Perkins. Voice: (03)255-8880.

Remote Bulletin Board (Singapore). (065)445-1646. 9600/2400/1200 24 hrs. 218 Mb Online (IBM upload/download). Sysop: Umar A. Rahman.

203

Terrapin Station. (203)656-0134. Grateful Dead Board. Sysop: Klaus and Gretchen Bender.

209

Bertha Board BBS. (209)823-0093 300/1200/2400/9600, or (209)239-9853, 1200/2400, 8-N-1, 24 hrs. MS-DOS, others. 220 Mb online. Emphasis on programming. Uploads and downloads. No fee. Sysop: Kenneth Roach.

Don's Dental Service. (209)239-4828. 8-N-1, 24 hrs, 1200/2400. On-line dental supply catalogs, No. CA Society schedules, post-graduate course schedules from UCLA, UOP, and Cal. Free. Sysop: Don Carlson.

Night Rider BBS. (209)432-4458, 24 hrs, 1200/2400. Two lines running FX-BBS. MS-DOS 100+ meg. Real-estate and business oriented. Upload and download from a large P/D files section. No fee, no registration required. Sysop: Jim Avey.

Oasis Software Library. (209)823-2803, 300/1200/2400, 8-N-1, 24 hrs. Shareware and PD for IBMs and compatibles. No fee but registration required. Sysop: Tim Campi.

Silicon Realms. (209)754-5530. 300/(1200 Noon) 9:30 am to 6:30 am. Formerly Motherload 64. Commodore, PET & Plus/4. Programmers board, Continuing & Short Story boards, FRPG. Sysop: Joe Commodore.

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The Backdoor BBS. (209)952-9430, 300/1200/2400, 8-N-1, 24 hrs. MS-DOS oriented board. Lots of software, online chess game, much more. Sysop: Randall Fox.

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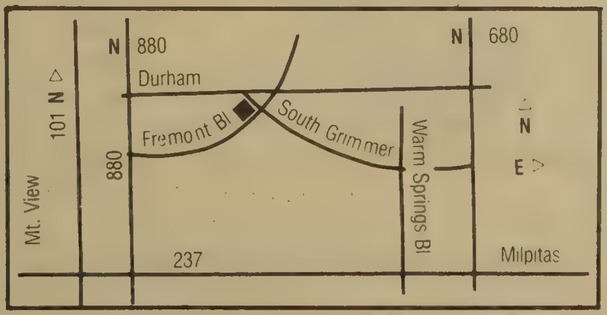

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Ashton-Tate Support. (213)538-6196. Free technical support, answers to questions about Ashton-Tate software products.

Beaver Creek. (213)437-1410. 8-N-1, All but 4-9 pm. Sysop: John Campbell.

Century Computers Amiga BBS. (213)697-2004, 24 hrs, 1200/2400. Sysop: Philip Marhqrst. Voice: (213)697-6977.

Chat Line. (213)534-4311. Multi-line, multi-user interactive group & private forums. Downloads, Database.

Computer Kenny's BBS. (213)436-3601, 6:30 pm–10 pm M–F; 5 am–8 pm Sat–Sun. 300/1200/2400. Fax service: (213)432-0039, 9600. Sysop: Kenny.

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South Bay Love Connection. (213)422-7693 24 hrs., 300/1200. Matchmaking, networking, general interests, adult interest areas, 10 subboards. Sysop: Lisa Townsend.

Southland News. (213)402-4079. 24 hrs. An online newsmagazine w/ general news, comments, entertainment, computer news show, club & swap meet listings.

TAUG BBS. (213)254-6153, 8-N-1, 24 hrs, 300/1200/2400. Tri-City Apple Users Group BBS. Primarily Apple II, but others welcome. Sysop: Kris Holtzclaw.

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Teleweb South Bay. (213)372-4050. Los Angeles 213 access number.

The Dharma Wheel. (213)777-6328, 8-N-1, M–Th, 6–10 pm, 1200. Mostly Mahayana, C128, Dragonfire BBS software. Sysop: Fonzy J. Broussard.

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The LAMG (Los Angeles Macintosh Group). (213)559-MACS, 8-N-1, 24 hrs, 300/1200/2400/9600. 100 Mb online of Macintosh rumors, news, reviews, unclass. ads, discussions, p.d. software. Sysop: Reed Hutchinson.

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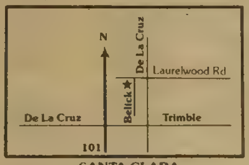

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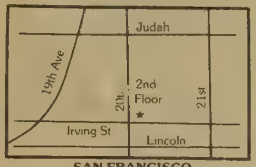

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Family Radio Forum. (415)562-5483. 300/1200/2400, 8-N-1, 24 hrs. Download pub. software & entire bible texts. Echo conferences on parenting, teens, singles, etc. Christian BBS for all. Sysop: Richard Yim.

FAST BBS (Fine Art, Science, And Technology). Available on the WELL and on MCI mail. For further information send email to Leonardo on the WELL, (415)332-6106.

Fiver BBS. (415)623-8809, 623-8809, 300/1200/2400, 300/1200/2400/9600 respectively. UNIX BBS that has communications software for both PC-DOS and UNIX/XENIX. Sysop: Bob Palowoda.

Flea Market. (415)898-8408, 8-N-1, 24 hrs., 300/1200/2400. Free adverts in the Flea Market. Sell your outgrown hardware, bargain items. Sysop: Pacific Telesales.

Foothill College Science And Engineering BBS. (415)941-5725. 300/1200/2400, 24 hrs. Educational Program Information. Sysop: Long Tran.

Forum-PC Demonstration BBS. (415)487-7639. 8-N-1, 300/1200. For registered owners and anybody else who would like to call. A variety of programming-related message bases. Sysop: Requin Systems.

Freedom BBS. (415)683-9560, 24 hrs., 1200. Dedicated to intelligent political discourse: literate liberals, concise conservatives, and the ubiquitious unlabelled are welcome. Sysop: Dennis H. Medley.

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KALW BBS. (415)641-4373. 8-N-1, 6 pm–8 am, BBS for programming updates and station information. Sysop: Bill Helgeson. Voice: (415)1177.

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Key System. (415)352-5528 24 hrs., 1200. Atari. SLCC User Group BBS, 8/16. Sysop: Mike Sawley.

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Online Goldmine. (415)352-5087. 7-E-1, 24 hrs., 300/1200. Classifieds, electronic yellow pages, messaging, trivia, and horoscopes. PRESTEL graphic protocol available upon registration. Sysop: Eric S. Echols Voice: (415)352-8221.

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Palindrome BBS. (415)591-2137, 8-N-1, 24 hrs, 300/1200/2400. No fee, 120 Mb, IBM/compatibles, uploads, downloads, growing message base. Sysop: Jonathan Herbach.

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SNLNDRO, (415)895-1785, 24 hrs., 300/1200/2400. A CMS v12 system, the northern California HUB for the FrEdMail School Network, operated by San Leandro High School for CUE and educators, 5 Mb. Sysop: Robert Shayler.

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The Big Board. (415)838-2465, 24 hrs, 300/1200. A board set up to help both fat people and their admirers. If you do not have a computer you may send a short message to the Sysop. Cliff Wilson, 567 Blackhawk Club Dr., Danville, CA 94526. Gay, bisexual, and straight welcome. Sysop: Cliff Wilson. Voice: (415)837-7492.

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The City Of Seven Hills (415)776-3451, 11 pm-8 am, 300/1200. Message bases, a database and a user interest log where the computer matches users of like interests; a game section that contains the multiplayer game Galactic Conflict where users do battle with each other. The system accepts all parity settings. Sysop: Jim Beliakoff.

The Connection. (415)686-6489. 24 hrs, 300/1200/2400. PD & shareware. Desktop Publishing Connection, Business Connection, Sysop Connection. Sysop: Kevin Slovick.

The Cove BBS. (415)931-5641. System dedicated to IBM users, files, messages, novices welcome, and a special support section for music, MIDI. Sysop: Bill Kanios.

The DogLab. (415)594-9806. 2400, 24 hrs. Large file library; several echomail conferences.

The Eagle's Nest PCBoard BBS. (415)439-0880, 1200/2400, 4:00 pm-5:30 am M-F. System dedicated to Boy Scouts of America and outdoor activities. Download section for DOS, games, applications, religious, and scouting programs.

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The House of Solitude. (415)948-4925. On line since October of 1987. Supports PD software for IBM UNIX and DOS systems. Wide variety of message bases including RPGs and text files.

The Key System. (415)352-5528. Official BBS of the San Leandro Computer Club. General interest for 8 and 18 bit Atari users. Free messages and downloads. Sysop: Mike Sawley.

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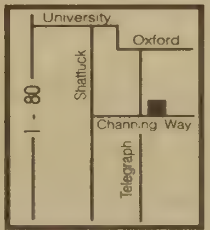

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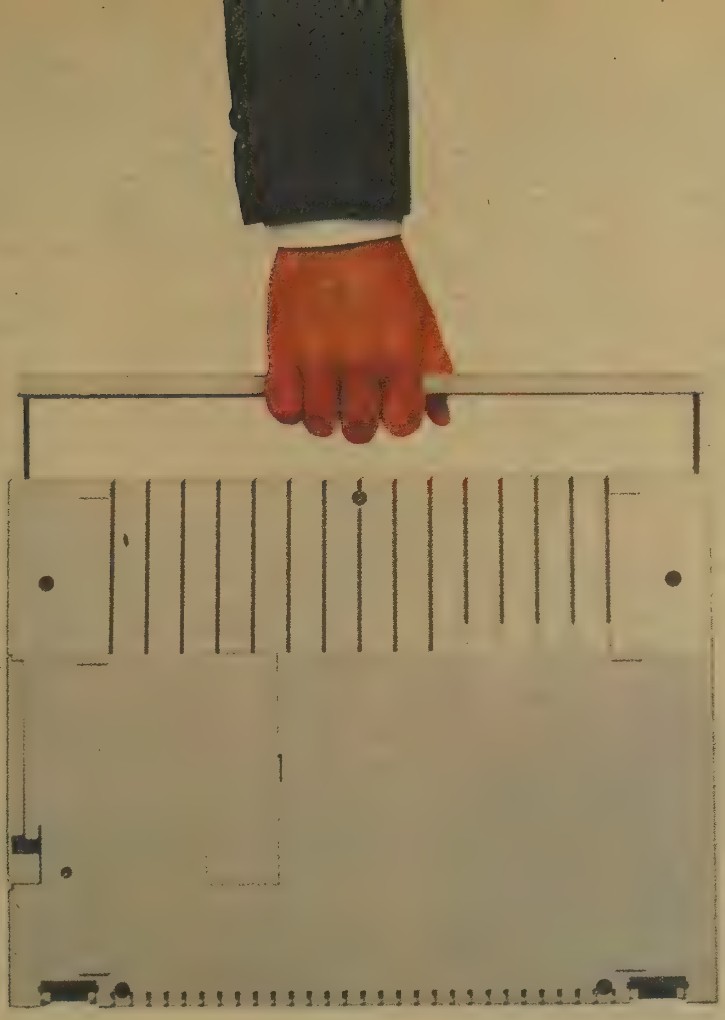

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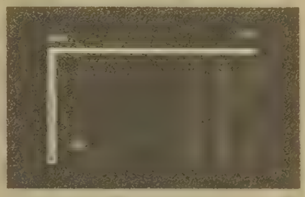

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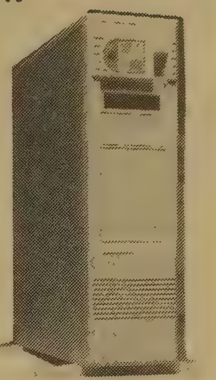

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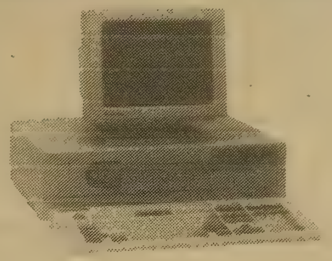

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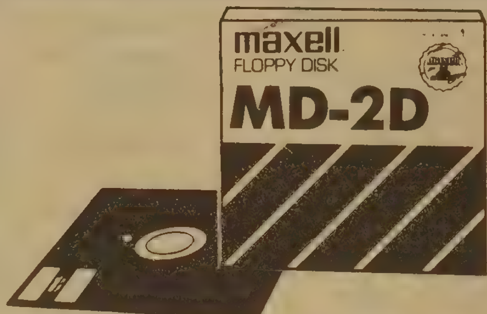

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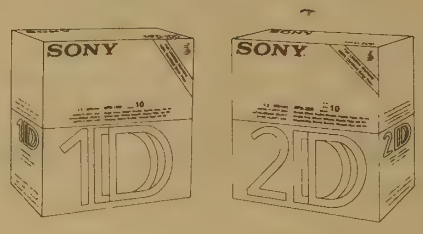

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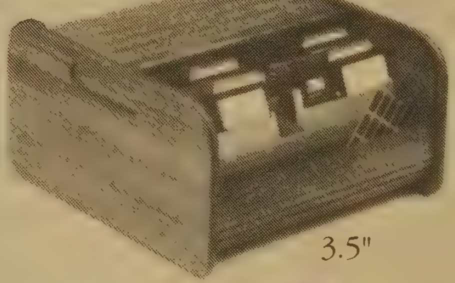

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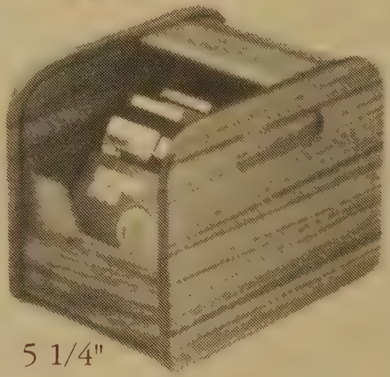

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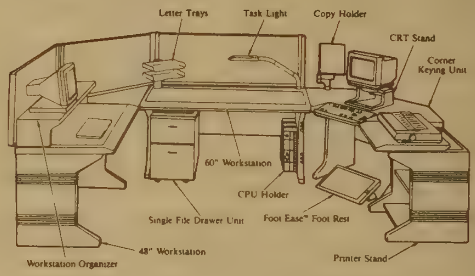

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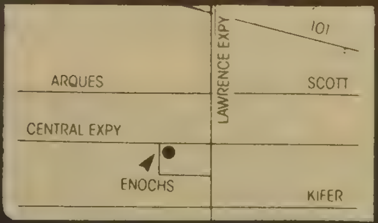


Computing. Meetings: 1st Wednesday of each month, 6:30 pm, Stagecoach Restaurant, 44 Montgomery St., San Francisco. Call 655-3110 for information.

BAY HPX. Meetings: 2nd Saturday Laptop & handhelds. Call Jim Horn or Michael Felsenstein: (707)794-3130/(415)564-8279.

Bay Area CYMA Dealers Association. Meetings: 2nd Tuesdays, Thursdays; 4:30-6:30 pm, San Mateo. Networking and support for McGraw-Hill accounting software consultants and retailers. Call: (415)345-5955.

Baytalk Computer Users Group. Write: PO 369, Berkeley 94701. BBS: (415)864-6430, 300/1200, 8-N-1.

Business Computerization User Group. Group forming. Write 6938 Buckingham Blvd., Berkeley, CA 94705, or call (415)848-2080.

California Genealogical Society Computer Interest Group. Meetings: 2nd Sat.-odd months, Genealogical Society Library, San Francisco.

Computer Associates Users Group. Meetings: 3rd Wednesdays, 6:30 pm, 1500 Van Ness Ave. Call: Beth Markus, (415)864-6770.

Computers & Law Assoc. Meetings: McGeorge School of Law, 3200 Fifth Ave., Sacramento, CA 95817.

Contra Costa Computer Club. Meetings: 2nd Tuesdays, 7:30 pm, Willow Creek Center, 1024 Mohr Lane, Concord. Call: Jim Leonard, (415)685-6178, or Roy Copeland, (415)676-6268.

CYMA/McGraw-Hill Users Group Meeting. Meetings: Monday, October 24, 3:00-5:00 pm, McGraw-Hill Publications Building, 425 Battery St., San Francisco. Meet CYMA professionals and learn how to get the most from your software. Call: (415)839-7466.

Digi-Dunces Un-Ominous. A meeting-ground and exchange for the fat-of-finger, the hopelessly analoguish, and patients of the electrogratification disease. Presently a confederation of various interests & occupations keeping one another apprised of relevant events & experiences. Contact: SASE, PO 884334, San Francisco 94188.

DPMA–San Francisco. Meetings: Third Tuesdays, 341 Sutter St., upstairs. Call: (415)442-6200, ext. 500.

East Bay Fog. Meetings: 2nd Wednesdays, Port of Oakland, 7th & Terminal. Call: Jean Koch, (415)272-9099.

East Bay User Group. Meetings: 3rd Wednesdays, 7 pm, 12500 Campus Dr., Oakland, Rm R-7, Call: (415)436-2453.

Entrepreneurial Support Group. CEO. Meetings: SASE, P.O. Box 2781, San Rafael, CA.

Ham Radio Computer Packet Group. Meetings: 2nd Fridays, 8 pm, Salvation Army, 4600 Appian Way, El Sobrante. Learn how to use your computer to broadcast all over the world with the fascinating world of Ham Radio. Call: Bob Fields, (415)237-3761.

High-Tech Gays. Meetings: 2nd Sundays, Part of the National Gay & Lesbian Task Force. Call: (408)993-3830.

High Technology Entrepreneurial Council. Meetings: Wednesdays, 6:30 pm, Piedmont Community Center, 711 Highland Ave., Piedmont. HTEC is a nonprofit corporation dedicated to providing software developers and other high tech entrepreneurs a forum for developing marketing strategies, building business relationships and exchanging experience and information. Call: Rachel Munoz, (415)339-3895.

Independent Computer Consultants Assn., Northern California Chapter. Meetings: Third Wednesdays, 6–9:00 pm, San Francisco Airport Hilton. Call: ICCA, (415)441-2948.

Independent Computer Consultants Association (ICCA). A national professional association dedicated to ethical standards in computer consulting. Provides a computer consultant referral service. Meets monthly. Call: (415)441-2948.

Microcomputer Users of Santa Cruz Fog Affiliate #116. Meetings: 2nd Thursdays, Green Acres School, 966 Bostwick Lane, Santa Cruz. This facility is wheelchair accessible. Call: Barney, (408)476-0504.

MORE: Modem users Of The Redwood Empire. Meetings: Thurs. July 14; Fri. Aug. 9; 7 pm, Roundtable Pizza, Highway 12 @ Stony Pt. Free membership for modemers who want to get together and talk about local boards. Includes novices to technowizards. Call (707)546-5203.

Mt. Diablo Technology Association. First meeting: Wednesday, Sept. 14. Others monthly at Michael's Restaurant in Walnut Creek. Lunch and evening meetings, send for calendar. Back by popular demand. Will explore common concerns in industry and educational developments. Call: Deborah Scott, (415)932-4828.

Network Users Group (NUG). Next meeting: July 7. Call for location and time. Panel discussion of workgroup software with several major software manufacturers represented. Call: (415)655-6500 for details.

North Bay Users Group (NBUG). Meetings: 2nd Thurs. 7:30-10 pm, 201 Maine St., Vallejo, CA. Family Computer Club dedicated to all forms of computing. Determine market opportunities, group research projects. (415)564-6669.

Northern California User Group. Meetings: Every 3 months. For schedule, Call: Ken Lebeiko, 881-2652.

Nota Bene User Group. Meetings: 3rd Tues. or Thurs., 7:30 pm Berkeley or Peninsula. For location and date, call: Thomas Ross, (415)845-2410.

PASS: Professional Association of Secretarial Services. Meetings: 2nd Saturdays 11:30 am, Oakland or San Mateo. Call: Nina Feldman, (415)655-4296.

Pioneer AWSSM (Association For Worldwide Software Support Managers). Meetings: 2nd Tuesdays, 6 pm. Call: Janice Corbo, 3Com Corp., (415)694-2841.

Pracsa, for Sysops & Users. Meetings: 2nd Wednesdays, 6:30 pm, Coco's Restaurant, 1305 South Mary, Sunnyvale. Call: Bill Strouse, (408)453-3321.

ProTel (Professionals In Telecommunications). Meetings: Monthly. Holiday Inn, 1221 Chess Drive, Foster City. ProTel is a network organization for people interested in telecommunications. Leave a message at (415)227-5637 for information.

San Jose User Group. Meetings: First Wednesdays. For location and time, call: Hanna Varniz, (408)984-8484.

SEF Marketing SIG. Meetings: 4th Thursdays, Teknowledge, 1850 Embarcadero, Palo Alto. Call: Don Morrison, (408)425-7222, or (415)854-7219.

Silicon Valley Computer Society. Contact Kent Stafford (408)286-2969. Or write to 2464 El Camino Real #190, Santa Clara, CA 95051.

Society For Technical Communication, Berkeley Chapter. Meetings: 2nd Wednesdays. International association of technical writers, editors, illustrators, and instructional designers. Call: Rae Montor, (415)531-2315.

Society For Technical Communication, Sacramento Chapter. Meetings: First Wednesdays, 6:30 pm, Coco's Restaurant, 7887 Madison Ave., Citrus Heights. International association of technical writers, editors, illustrators, and instructional designers. Call: (916)962-6282.

Software Entrepreneur's Forum (SEF). Meetings: 3rd Thurs. 1875 Embarcadero Rd., Palo Alto. Helps individual software developers and startup software companies. Call for complimentary newsletter. (415)854-7219.

South Orange County Computer Club. Meetings: 3rd Thursdays, 7:30 pm, Westminster Community Ctr., Westminster Blvd. east of Beach. Friendly discussion, presentations on using computers, public domain software libraries. All computer types.

Technology Executive Roundtable (TER). Meetings: Fourth Tuesdays, 6:00 pm, Santa Clara.Call: Jenny Hoyt, (408)997-1826.

The Hispanic Computing Association. Meetings: 3rd Thursdays, DataDesigns/American Music, 2388 Mission St., SF. Spanish/English Computer Information, PC & Mac presentations and solutions. Call: Juan Lira, (415)824-8337.

United Sysops Association (USA). Meetings: 2nd Wednesdays, Coco's Restaurant, 1305 S. Mary Avenue, Sunnyvale. The emphasis of the group is to help the sysops around the world, and especially in the countries of the Pacific Rim. Call: William Strouse, (408)453-3321.

Valley of the Moon Users Group. Meetings: 2nd Saturdays monthly, 10:00 am, Moose Lodge, Sonoma. All systems welcome. BBS, 300 Baud, 24 hours, (707)996-7922.

Women's Computer Society. New organization to increase the computer literacy of women of all ages. WCS will represent a number of SIGs, including the already established Women's Macintosh User Group (Women's-MUG). Call: Rita Zokaei or Judy Onton, (415) 574-8225/(408)867-2842.

User Groups

AMIGA

ACCESS (Amiga + Commodore Computer Enthusiasts Society). Meetings: 2nd Thursdays, 7 pm, Livermore Airport terminal off I-580 Airway exit. Call: Paul Tibbals, (415)829-6053.

Amiga Addicts Anonymous. Meetings: Newsletter, public domain library, demonstrations. Write PO Box 4669, Walnut Creek, CA 94596. Call: (415)689-3453.

Amiga East Bay Info Exchange (AEBIE). Meetings: 2nd Tues., 7 to 9 pm, 11185 San Pablo Ave., El Cerrito. Write to P.O. Box 485, Pinole, CA 94564.

ASCITEC: The Amiga Science & Technology Users Group. Meetings: 2nd Thurs., 5-7 pm, Lockheed, B/157, Rm. 4-C, Sunnyvale, CA. Scientific/Video Applications. Classes available.

AUGment - Amiga Users Group of Silicon Valley. Meetings: 2nd Fri., Write to P.O. Box 1863, Fremont, CA 94538 for more info.

AUM—Amiga Users Of Marin. Meetings: Third Wednesdays, 7:30 pm, room 191, Science Center, College of Marin, Kentfield. Call: Bob Galvan, (415)924-5384.

Bay Area Amiga Developers Group (BADGE). Meetings: 3rd Thurs., 8 pm, Turing Auditorium, Stanford University, Stanford, CA. For all Amiga programmers. No membership fee.

CWEST Bay Area Commodore Users Group. Meetings: Third Thursdays, 7:00 pm, Fort Mason, Bldg. C, Rm. 215. Support C-64/128 and Amiga. New Users welcome. Write PO Box 146731, San Francisco, CA 94114-6731.

HAUG (Hayward Amiga Users Group). Meetings: 1st Wednesdays, 7 pm, Mulford Gardens Community Center, San Leandro. Call: Ken, (415)352-0220, or Kenny, (415)351-7349.

Northern California Amiga Club. Meetings: Second Saturdays, 2 pm, Rico's. Supports Amiga. Write: PO Box 54, Bella Vista, CA 96008.

SMAUG (Salinas-Monterey Amiga Users Group). Meetings: 3rd Tues., at 7 pm, Seaside Library, 550 Harcourt Ave., Seaside, CA. Write PO Box 776, Castroville, CA 95012. Call Richard Binsacca at (408) 678-2518.

SVAUG-Scotts Valley Amiga Users Group. Meetings: 2nd Thursday, 7:00 pm, The Computer Room, Kings Village, Scotts Valley.

Vallejo Amiga People (VAMP). Meetings: 2nd Tues., 6:30 pm, Software 1st, Vallejo Corners Shopping Center. Contact Bill Braun at (707) 554-0263.

AMSTRAD

Amstrad Word Processing User Group (AWPUG). We are an exclusive Amstrad PCW Word Processing User Group. Call: Dennis Anderson, (707)795-8548.

North American Amstrad Users Group (NAAUG). National User group. For info send S.A.S.E. to NAAUG, P.O. Box 2178, Ferndale, WA 98240.

APPLE

A.P.P.L.E. Co-op. Meetings: National User Group. Call A.P.P.L.E. Magazine. Write: 290 S.W. 43rd Street, Renton, WA 98055. Or call (206)251-5222 for more info.

Apple Pickers of the Redwood Empire. Meetings: 2nd Sat., 10 am, Santa Rosa JC, Shuhaw Hall, Rm. 1735. Call for sample newsletter. (707)763-8322.

Apple Sac. Meetings: 1st and 2nd Wednesdays, 3rd Tuesdays, 7 pm, Madison School on Harrison St. in Sacramento. Newsletter, demos, swap meets, PD files, BBS.

B.E.A.R. Apple II National Users Group. Meetings: send S.A.S.E. to B.E.A.R., 4719 Meridean Ave. #401, San Jose, 95118. Printshop & Appleworks files, monthly newsletter.

Diablo Valley Apple Users. Meetings: 1st Mon, 7 pm, Willow Creek Ctr., 1026 Mohr Lane, Concord, CA. SIG's meet monthly. Featuring library of pub. domain software & club's DOM's. Newsletter, demos, group buys hard/software.

GravenStein Apple IIGS Users Group. Meetings: 3rd Saturdays, 10:00 am, Coddingtown Mall, Santa Rosa. User group to explore new and existing programs and uses for the IIGS, to order equipment and material as a group for quantity discounts and to encourage the use and development of the IIGS among current, new and potential users. Call: Aaron Lamar, president, 938-8479.

San Francisco Apple Core. Meetings: 2nd Tuesdays, 10 am, Daly City Library, 40 Wembley. BBS, SIGS, PD/SW library, Help List, Newsletter, more. Call: 398-2335/771-5830.

San Leandro Apple User Group. Meetings: 1st Thursdays, San Leandro HS, Rm. 213. New owners to experienced users welcome. AppleWorks, software and telecommunications SIGs meet monthly. Call: (415) 483-6046.

Society For The Prevention Of Cruelty To Apples. Meetings: 2nd Wednesdays, 7:30 pm, Fremont Main Library, 39770 Paseo Padre Pkwy. Call: Dean Fern, (415) 537-3439.

Tri Valley Apple II Users Group. Meetings: 1st Thurs., 6:30 pm. Call Esther Farnstrom at (415) 829-3672 or Dan Balsey at (415)828-6237 for meeting location.

ATARI

ABACUS (Atari Bay Area Computer Users Society). Meetings: 1st Saturdays, Christ Lutheran Church, Quintara St. at 20th Ave., SF. Open to all Atari XL/XE and ST users. $20/yr. Call: (415)753-8483.

Bay Area Atari Users Group (BAAUG). Meetings: General meeting and ST users meeting 1st Mon., 7:30 pm, Agnews State Hospital Auditorium at Palm Road & Circle Drive. Off of Lafayette Blvd., Santa Clara. On 2nd Tuesdays. 8-bit users meet at H-P, Wolf and Pruneridge, Cupertino. Call: Joe Fischer, (408)988-3065. BBS: (408)247-1257.

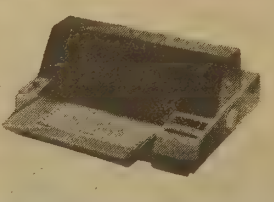
COAST (California Original Atari ST Users Group). Meetings: 3rd Wednesdays, 7 pm, 2105 Bancroft, Berkeley. Call: (415)945-1949.

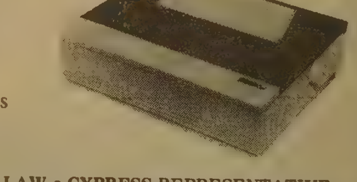
Diablo Valley Atari Computer Enthusiasts (DACE). Meetings: 1st Thursdays, DACE supports all Atari computers. Newsletter, demos, raffles, DOMs, and programming SIGs. Call: Larry, (415)689-5160.

Sacramento ST Users Group. Meetings: Second Wednesdays, 7 pm, Pac Bell Auditorium, 2700 Watt Ave., Sacramento. Supporting Atari ST and Mega ST computers.(916)944-1291.

San Leandro Computer Club. Meetings: 1st Tuesdays, 8 pm, San Leandro Community Library. Keith Sammons, (415)887-2008.

South County Atari Users Group. Meetings: 2nd Wednesdays, 7 pm, San Jose Computer Store, 640 Blossom Hill Rd., San Jose. Call: Ron Reade, (408)225-7162.





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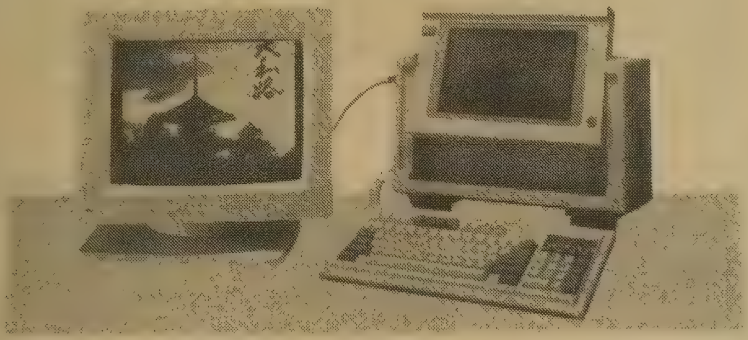

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AT&T Computer Users Group - South Bay. Meetings: Third Wed., 7:00 pm, AT&T Bldg., 1090 E. Duane, Sunnyvale, CA. Call: Joe Lipsig (408)522-4114. BBS: (408) 462-6329.

North Bay AT&T Computer Users Group. Meetings: 1st Wed., 6:30 pm, AT&T building. Call: Joe Mahoney (415)586-8376. BBS: (415)829-6027.

Tri-Valley AT&T Computer Users' Group. Meetings: Third Thursdays, 6:30 pm, 5794 West Las Positas Blvd., Pleasanton. Call: Ed Novi, (415)224-2996, Joe Mahoney, (415)540-2219.

BLIND USERS GROUP

International Blind Users Group (I-BUG). As a member you will receive 6 issues of Compu-Help-On-Disk as well as your own ID and password to CompuHelp. $20/yr. Call: (916) 783-0364.

CAD/CAM

San Francisco Bay Area CAD-DCA User Group. Meetings: 3rd Wednesdays, 6:30 pm. Call: Lupe Chavarria; (415)449-0230.

San Francisco/Marin AutoCAD Users Group. Meetings: 2nd Tuesday evenings. $20 annual membership fee & newsletter. For further info, call Volker, 331-9466.

Sonoma County AutoCAD Users Group. Call (415)777-9144 for info.

TCUG, Textile Computer Users Group. Meetings: Bimonthly, call coordinator for location and time. Thirty-seven members and growing. We use all types of computers to produce textile designs and run textile equipment. Call: Margaret Copeland, (415)284-1635.

COMMODORE

ACCESS (Amiga + Commodore Computer Enthusiasts Society). Meetings: 2nd Thursdays, 7 pm, Livermore Airport terminal off I-580 Airway exit. Call: (415)829-6053.

ACCESS (The Amiga And Commodore Computer Enthusiasts Society). Meetings: 3rd Tues., 7:30 pm, Community Room of Homestead Savings & Loan, 999 E. Stanley Blvd., Livermore, CA. Contact Ron Kremkow at (415)449-1784.

Commodore 64 Software Users Group For New Commodore Owners. One-on-one help for new owners. Meeting place & time TBA by members. Call (714)531-2977 for info.

Cupertino Chapter of 64/More Commodore UG. Meetings: 3rd. Sat., BBS (408)946-6154.

CWEST Bay Area Commodore User Group. Meetings: 3rd Thurs., Fort Mason, Bldg. C, Rm. 215. Supports C-64/128, Amiga. Write P.O. Box 146731, San Francisco, CA 94114-6731.

Diablo Valley CUG. Meetings: 3rd Thurs., 7:30 pm, 1331 Concord Ave, Concord, PO Box 27155, Concord, CA 94527. For info write: PO Box 27155, Concord, CA 94527. Or call (415)932-2413.

F.U.N.H.U.G. - Fremont, Union City, Newark, Hayward User Group. Meetings: 3rd Thurs., 7:30 pm, Newark Public Library, 6300 Civic Terrace Ave., Newark, CA. A user-organized, user-operated user group not affiliated with any computer or software manufacturer or distributor.

Fairfield Commodore User Group. Meetings: 1st & 3rd Mon., Solano County Education Bldg. Write to P.O. Box 2778, Fairfield, CA 94533-9998 for info.

Marin Commodore Users Group. Meetings: 2nd Wednesdays, Redwood High. Call: 883-7748; BBS 883-2558—300/1200.

Mother Lode Commodore Users Group. Meetings: 2nd & 3rd Thursdays, 7:00 pm, Calaveras County Water District Board Room. Supports the Commodore PET, VIC, 64, Plus/4 C-16 & 128. Call: Larry Anderson, 754-5530.

Napa Valley Commodore Computer Club. Meetings: Third Mondays, Rapoport's, 2225 Brown St., Napa. Write to: PO Box 2324, Napa, CA 94558.

North Valley Chapter of 64/More Commodore UG. Meetings: 2nd. Sat., BBS (408)946-6154.

PLUG (The Plus/4 Users Group). No regular meetings. Over 800 members internationally. Write to P.O. Box 1001, Monterey, CA 93942 for info.

San Jose Chapter of 64/More Commodore UG. Meetings: 1st. Sun., BBS (408)946-6154.

Silicon Valley Commodore Club. Meetings: 4th Wed., 7 pm, Hewlett-Packard, 5301 Stevens Creek at Lawrence & 280. C-64, C-128, & Amiga.

COMPUTER ASSOCIATES

Computer Associates Users Group. Meetings: Third Wednesday of the first month of the quarter, 238 Texas St., San Francisco. Come share ideas and information with other local users of Computer Associates Accounting Software. Call: Beth E. Markus, (415)864-6770.

DATAEASE

Bay Area DataEase Users Group. Meetings alternate between San Francisco and Palo Alto. Contact Kermit Carter at (415)945-7817 for info.

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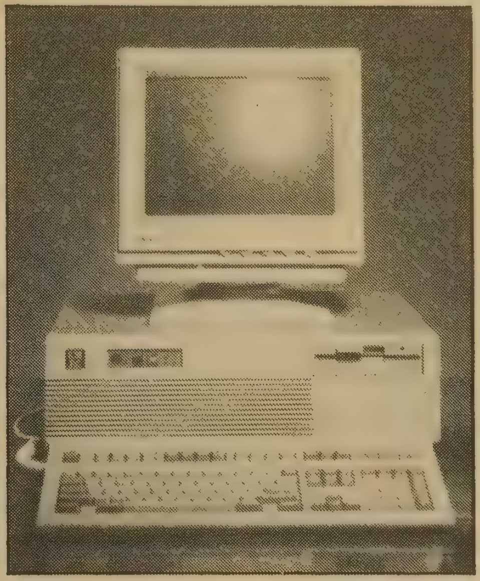

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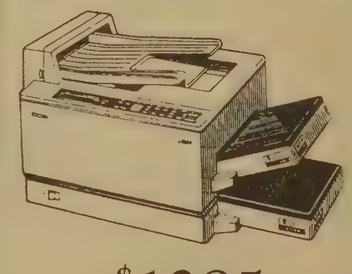

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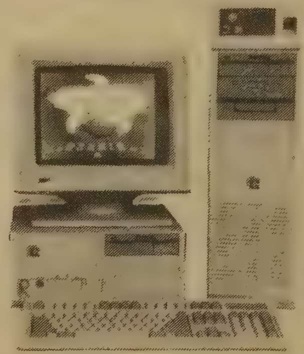

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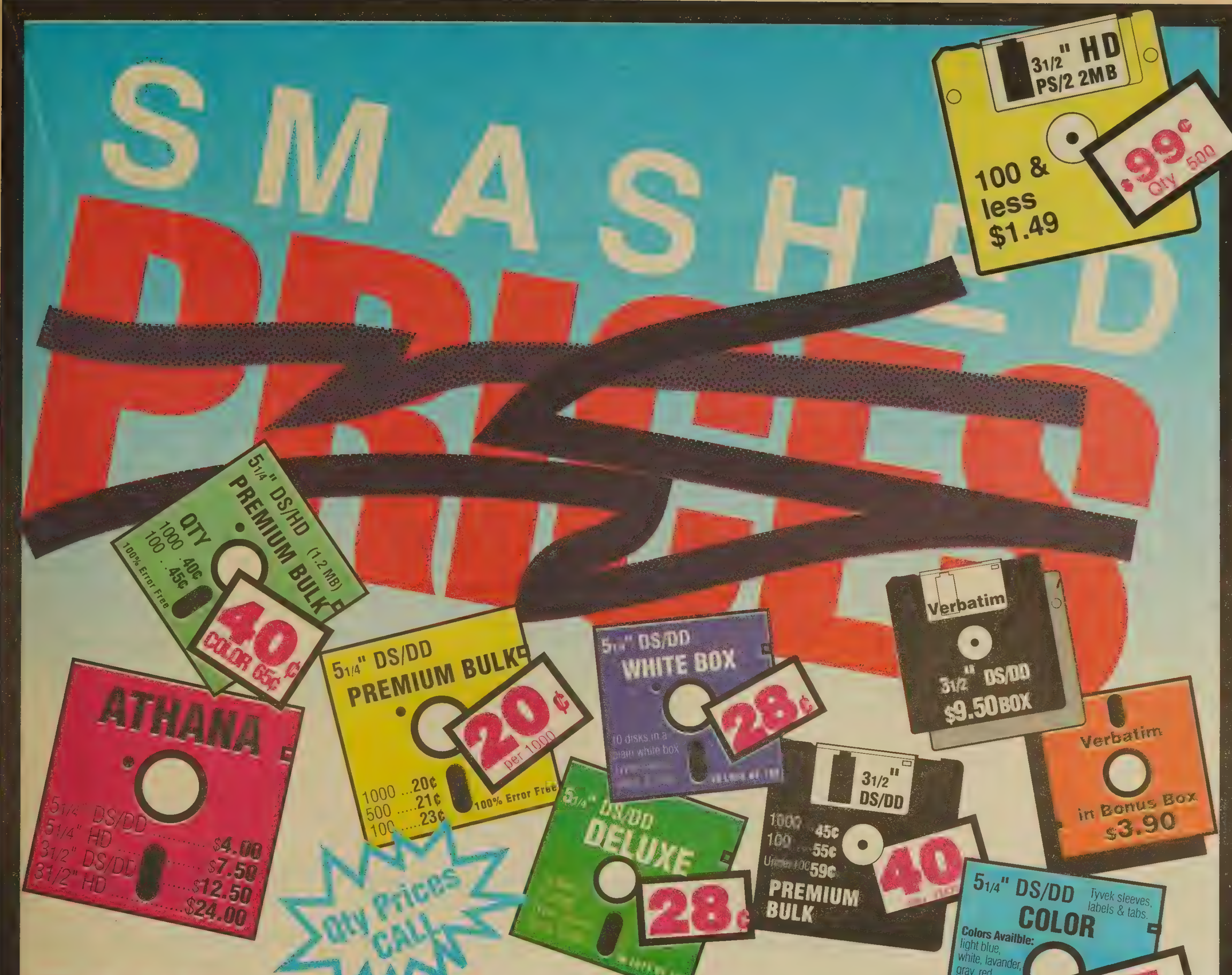
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Santa Cruz Computer Society. Meetings: 3rd Thursdays. 7 pm, Santa Cruz County Office of Education, 809 Bay Avenue, Suite H, Capitola. Call: 479-1180.

Silicon Valley Computer Society. Meetings: 4th Wed., 7:30 pm, Oak Room, at Hewlett Packard, on Pruneridge in Cupertino. Call Kent Stafford for info at (408)286-2969.

Silicon Valley FOG. Meetings: 3rd. Wed., 7:30 pm, Saratoga Community Library, 13650 Saratoga Ave.

Solano Community PC Users Group. Meetings: 3rd Monday, 7 pm, Fairfield High School.

Solomon User Group Of Silicon Valley. Meetings: Wednesday, August 10, 6:30 pm, Conveyor And Storage Dynamics, 2581 Leghorn St., Mt. View. Call Grihalva Associates, 39899 Balentine Dr., Suite 175, Newark, CA 94560; (415)659-1515.

South Bay AT&T PC UG. Meetings: Call for info. Call: (408)226-0116.

South Bay WordPerfect User Group. Meetings: Monthly, 13650 Saratoga Ave., Saratoga. Call: Martin Van Derpool, (408)238-8434.

South County PC Users Group. Meetings: Round Table Pizza Restaurant, 22457 Foothill Blvd., Hayward. Call: R.A. McCloud, (415)537-9899.

Teachers SIG/SFPCUG. Meetings: 3rd Mondays, 7:30 pm, Chancellor's Conf. Rm., UCSF, 3333 California St., SF. Call: Margaret Gwathmey, (415)982-4221.

TRS Nybblers. Meetings: 2nd Friday, 8 pm, Chabot College, 2555 Hesperian Blvd., Rm. 600, Hayward. MS/DOS, CP/M, laptops, CoCo's, Mod 1, 3, 4; Mod 2, 12, 16, 6000. PD software education modules, problem-solving committee.

Valley Computer Club IBM PC Users Group. Meetings: 3rd Wed., 6 pm, Xerox Bldg. 475 Oakmead Pky, Sunnyvale, CA. $24/yr member. Monthly VPUG News, access rights to VPUG-SIG Advice on desktop pub. techniques, new products, bugs, etc.

WordPerfect SIG/SFPCUG. Meetings: 3rd Mondays, 7 pm, Chancellor's Conf. Rm., UCSF, 3333 California St., SF. Call: Debbie Foster, (415)285-4534.

INMAGIC

San Francisco INMAGIC User Group. INMAGIC Meetings: Monthly. Call for dates and times. Call: Dana C. Ellingen, 423-4582.

KAYPRO

BAKUP. Meetings: 3rd Tuesdays, 7:30 pm, Albany Senior Center, 846 Masonic Ave., Albany. Call: Bob Athey, (415)526-3541.

Kay+Fun Peninsula Computer Club. Meetings: 7:30 pm, Social Room, 222 Laurel St., San Carlos. CP/M + DOS library. BBS: (415)572-8219. Call: 593-9981.

San Francisco Computer Society. Meetings: 1st Monday, 7:00 pm, Homestead S&L, 5757 Geary Blvd., San Francisco CP\M and DOS machines. No BBS. Call: Ralph Gallagher, (415)929-0252 for information.

LAPTOPS

Bay HPX, Laptops, and Handhelds. Meetings: 2nd Saturdays. Call: Jim Horn, (707)794-3130 or Michael Felsenstein, (415)564-8279.

MACINTOSH

A32, The Association Of Apple 32 Users. Meetings: 2nd Saturdays, GTE cafeteria, Mountain View. Membership includes monthly meetings, access to Disk of the Month, full BBS priviledges, the ICON newsletter, SIGs, discounts, and much more. Call: 263-0398.

APX, Inc. Macintosh. A national intercorporate computer users information service with several communications channels including an electronic forum on MacNet, newsletters, and local and national meetings and special panels. Several local chapters exist, you can start one too. Call: (408)745-0665, or write to: Mike Bailey, APX, 370 Altair, PO Box 175, Sunnyvale, CA 94086.

Bay Area MacForum. Meetings: 3rd Saturdays, noon, Daly City Library, 40 Wembeley. BBS, SIGS, PD/SW library, Help List, Newsletter, Newcomers Meeting, more. Call: (415)771-5830/398-2335.

Berkeley Macintosh User Group (BMUG). Meetings: every Thurs., 6 pm, Physical Sciences Lecture Hall, UC Berkeley Campus. SIG meetings on Mondays, Tuesdays & Wednesdays. Call for this week's topic. (415) 849-9114. BMUG, 1442A Walnut St., #62, Berkeley, CA 94709.

Christian Macintosh User Group, San Francisco Chapter. Meetings: 2nd Thurs., San Francisco. Newsletter and support available. Contact Rick Thrasher at (408)437-1913. Bible Study and DTP SIGS.

Christian Macintosh User Group, Silicon Valley Chapter. Meetings: 1st Thurs., San Jose. Newsletter and support available. Contact Rick Thrasher at (408)437-1913.

Desktop Publishing SIG/GMUG. Meetings: 1st Tuesdays, 7 pm, San Francisco Business Times Building, 325 Fifth St., San Francisco. Call: 641-GMUG.

Diablo Valley Apple Users. Meetings: 1st & 3rd Fri., 7 pm, Willow Creek Ctr., 1026 Mohr Lane, Concord, CA. SIG's meet monthly. Featuring library of pub. domain software & club's DOM's. Newsletter, demos, group buys hard/software.

EBMUG (East Bay Macintosh Users Group). Meetings: 3rd Tuesdays, 7:30 pm, Lakeview Library near Lake Merritt in Oakland,. Free!! Tutorials/Demo's. Bring blank disk. Meetings open to everyone. Call: Terry Pennington, (415)486-0147.

GMUG (San Francisco's Macintosh User Group for Gays and Lesbians). Meetings: 3rd Wednesdays, 7:30 pm. Call: 641-GMUG.

HyperCard SIG/GMUG. Meetings: 7 pm, 78-A Mars St., San Francisco. Call: 641-GMUG.

Mac Diablo Users Group (MDUG). Meetings: 3rd Tues., Community Room, Glendale Federal Savings, 3101 Crow Canyon Road, San Ramon.

MacCruisers—Santa Cruz. Meetings: 2nd Wed., Jade Street Community Ctr. at 45th Ave., Capitola, CA.

MacSEF, the Macintosh Developers SIG of the Software Entrepreneur's Fourm, Meetings: 7 pm, 2nd Tuesdays, Call for dates and time. Call: Barbara Cass, (415)854-7219 or, Tony Meadow, (415)644-9400.

Macintosh Users Of ComputerWare (MUCoW). Meetings: 2nd & 4th Wednesdays, 7:00 pm, Above ComputerWare store, 490 California Ave., Palo Alto. Call: (415)496-1051 or 496-1033.

MacNexus—Sacramento's Macintosh Users Group. Annual dues, $30, includes monthly newsletter. Contact: MacNexus, PO Box 163058, Sacramento, CA 95816; (916)448-6481.

Macs Of Marin (MOM). Meetings: 2nd Thursdays, 7 pm, Redwood High School, 395 Doherty, Larkspur. Call: Steve Salzman, 459-5707.

Silicon Valley Computer Society's Macintosh SIG. First meeting: September 21, 7:30 pm, 6th floor offices of Arthur Young and Co., Mitsubishi/Plaza Bank Building, 55 Almaden Blvd., San Jose. A forum for shared ideas. First meeting will be a demonstration of HyperCard. Other demos are planned for future meetings. Call: Dennis Dawson, (408)947-5550.

Stanford Macintosh Users' Group (SMUG). Stanford community membership: $25; public membership: $35 per year. Call: 723-SMUG. BBS: (415) 723-7685.

TI-West. Meetings: 2nd Fri., 8 pm, Chabot College, Rm. 600, 25555 Hesperian Blvd., Hayward, CA. Access to a variety of pub. domain software, education modules "problem solving" peripheral committee.

Tri-Valley Macintosh User's Group (TMUG). Meetings: 1st Thursdays, 7 pm, 4695 Chabot Dr., Rm 114, Hacienda Business Park, Pleasanton. Newsletter, large P/D library. Call: James, (415)426-8756 eves, Mike, (415)838-6165.

MICROSOFT

Mac Diablo Users Group (MDUG). Meetings: 3rd Tuesday, 7:30 pm, Community Room, Glendale Federal Savings, 3101 E. Crow Canyon Rd., San Ramon. Small, helpful group.

Microsoft Word Users Group. Meetings: 4th Mondays, 7:30 pm-9:30 pm, Hewlett-Packard Cupertino, Oak Room Bldg., 48 Pruneridge, 100 yds. east of Wolfe off Hwy 280. August 22: Chris Donner, Pres. Access Softek on DRAGNET for Text Retrieval and Management. Call: Bill West, (408)356-8805.

Mirosoft Word SIG of the SVCS. Contact Bill West, (408)356-8805.

MINDSET

San Francisco Mindset Users Group. Call: (408)270-0251.

MORROW

BAMDUA (Bay Area Micro Decision Users Assoc.). Meetings: 3rd Tues., 7:30 pm, Albany Senior Center, 846 Masonic Street (just north of Solano) in Albany, CA. Voice: (415) 534-4257. BBS: (415) 654-3882. P.O. Box 5152 Berkeley, CA 94705.

San Francisco Computer Society. Meetings: 1st Mon., 7:00 pm. Homestead S&L, 5757 Geary Blvd., San Francisco. MS-DOS machines, Osborne, Kaypro, Morrow. Call: Ralph Gallagher, 929-0252.

NEC

Bay Area NEC/100 Users Group. Meetings: 2nd and 4th Wednesdays. Locations vary. For those interested in laptops, especially Kyocera 80C85 type (NEC 8201a, Radio Shack Model 100 or 102). Call: (415)658-1889.

NOVELL

Novell Users Group. Meetings: Third Wednesdays, 6:30 pm, Coco's restaurant, 1305 South Mary, Sunnyvale. Newsletter, bulletin board, product demos, assistance for beginners. Call: Bill Strouse, (408)453-3321 days; modem, 24 hrs: (408)453-3326.

ORACLE

Northern California Oracle UG. Meetings: Call (408)738-8330 for info. Meets every 3 months at different Bay Area locations. Newsletter published between meetings.

OSBORNE

San Francisco Computer Society. Meetings: 1st Monday, 7:00 pm, Homestead S&L, 5757 Geary Blvd., San Francisco. CP\M and DOS machines. No BBS. Call: Ralph Gallagher, (415)929-0252 for information.

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PARADOX

Silicon Valley Paradox Users Group. Meetings: 3rd Tuesdays, except December. For information, call: Emily Alford, (408)285-0348, or LaTulipe at (408)646-0297.

PROGRAMMING LANGUAGES

APL Bay Area Users' Group. Meetings: 2nd Monday, 7:00 pm, 3700 Mt.. Diablo Blvd. #300, Lafayette, CA. Call: Tibor Horvath, (415)283-5611.

Bay Area Users Of Progress Software. Meetings: 3rd Wednesdays, 7:30 pm. 100-member group discusses and shares Progress programming tips and techniques. Call: John Campell, (415)857-0686.

C Language SIG/SFPCUG. Meetings: 2nd Mondays, 6:30 pm, Kam's Restaurant 2068 Center St., Berkeley. Call: Debee Norling, (415)644-1855.

CC County Programmers Group. For info write: 3115 Elizabeth Lane. Antioch, CA 94509.

Forth Interest Group of Silicon Valley. Meetings: 4th Sat., 1 pm, Oak Room, at Hewlett-Packard, on Pruneridge in Cupertino. Call George Shaw at (415)276-5953 for info.

Forth Interest Group, North Bay Chapter. Meetings: 2nd Sat., 1 to 5 pm, South Berkeley Community Library, corner of Russell and Martin Luther King Junior Way. One block north of Ashby BART station. Contact George Shaw, (415)276-5953.

Modula-2 SIG/SFPCUG. Meetings: 3rd Thursdays, 7:30 pm. Call: Richard Lesnick, (415)398-3587.

PIE (Programming and Interfacing Enthusiasts). Five SIGS for Mac, Apple II, and PC. PIE BBS open to member and non-members. Call: Duane B. McGhie, (408)252-4944.

Prolog Forum. Meetings: Monthly, 2nd Thursday 7:00 pm, Belmont and various locations. Prolog Forum is a group dedicated to supporting users of the Prolog computer language in artificial intelligence. Call Mark A. Epperson at (415)594-9981.

SEF OOP SIG. Meeting: Third Tues., 7 pm, Parc Place Systems, 2400 Geng Rd., Palo Alto. Call: Dean Ritz, (415)691-6727 or (415)854-7219.

R:BASE

East Bay User Group. Meetings: Last Thursday of each month. For location and time, call: Scott, 451-5316. endro Computer Club.

R:BASE User Group Of The Redwoods. Meetings: Third Wednesdays, 3 pm, Sonoma/Marin County rotating meeting places. Call: Jim Ray, (707)886-5315.

Northern California User Group. Meetings: Every 3 months. For schedule, call: Ken Lebeiko, 881-2652.

Peninsula User Group. Meetings: First Wednesdays. For location and time, call: Don Whitecar, 592-5033.

TANDY/RADIO SHACK

CoCoByte. Meetings: Last Saturdays, 2 pm-4 pm. Supporting the Tandy Color Computer 11, 2 or 3 with Spanish, English & French software. Write to: CoCoByte, c/o Fabian Rodriguez, A.A. 5976, Cali-COLOMBIA.

Model 100, 102 & 200 Support. Meetings: Int'l support by mail, voice & BBS. Free on-line weekly news letter. Write Club 100 984 Hawthorne Dr., Walnut Creek, CA 94596. Or call, (415)937-5039.

Tandy 1000 (The Mug). Mail-based user group w/ monthly newsletter. Not for PC jrs. Members communicate through newsletter. $8/yr. fee; checks to: Daniel Tuma, 30 Arjang Ct., Alamo, CA 94507-2041.

TRS Nybblers. Meetings: 2nd Fri., 8 pm, Chabot College, 25555 Hesperian Blvd., Hayward. MS-DOS, CP/M, laptops, Mod 1, 3, 4, Mod 2, 12, 16, 6000. Bud Gallagher (415)522-5960 or Bruce Jarvis, (415)846-3575.

REVELATION

Bay Area Revelation UG. Meetings: 1st Tues. Call: (415)759-1210.

ROBOTICS

Home Robots Now! Meetings: 2nd Thursdays. A two-year-old user group currently working on an autonomous robot for navigating in a house. Call: James P. Cruse, (408)475-7444.

SF Robotics Society. Meetings: 2nd Mondays, Exploratorium. We feature an experimenter's roundtable, guest speakers, an annual robot race, and a BBS—(415)752-7228. Call: Jim Strope, (415)668-7074.

SANYO

Sanyo PC Hackers. Meetings: 1st Wed., 7 pm, Mercury Room, Mercury Savings & Loan, 99 El Camino Real, Menlo Park.

SOLOMON

San Francisco Solomon III Users Group. Meetings: last Wed., odd months 6-9 pm, Price Waterhouse, 555 California St. 36th fl., San Francisco. Annual membership - $50; corp. membership - $75.

Solomon User Group of Silicon Valley. Meetings: For info contact Grihalva Associates, 39899 Balentine Dr., Suite 175, Newark, CA 94560.

SQL

SQL_Forum, The Bay Area SQLBase User Group. Meetings: First Thursdays, 6:30–8:30 pm, 394 Pacific Ave., Lower Level, San Francisco. An open group discussing client/server computing with SQLBase, SQLServer, and other SQL DB Servers, Fresh topic/speaker/demo. Call: Todd Ziesing or Ric Galgliardi, (415)731-2201.

SUN

Sun User Group. Call: (415)336-4343.

S—100

S—100 Business Users Group. Meetings: 4th Tues., 7:30 pm, Santa Clara Univ., Rm. 101, Bannan Engineering Bldg. CP/M & MS-DOS libraries. BBS: (408)262-5150, 8-N-1, 2400/1200/300.

TEXAS INSTRUMENTS

Bay Cities User Group. Meetings: 1st, 3rd, 5th Wednesdays, 7:30 pm, 1637 Morgan, Mt. View. Call: Jack, (415)964-4344.

Brea 99'ers Users Group. Meetings: 1st Mon., 7:30 pm, Mercury Savings, La Habra, CA.

San Francisco 99ers. Meetings: 3rd Saturdays, 3751 Elston Ave. Call: Fred, (415)530-8335.

Thousand Oaks Personal Computer Club (TOPCC). Meetings: monthly. Call: (714)686-0336.

TIMEX/SINCLAIR

Timex Sinclair East Bay Z80 Users Group (TSEBZUG). Russ English, (415)465-3116.

Timex Sinclair Peninsula Users Group (TSPUG). Contact George Mockridge, (408)878-1773.

Timex/Sinclair Users of Silicon Valley (GUTS/SV). Meetings: each Sat., 9 am, Stanford Univ., Jordan Hall (quadrangle), Math Bldg. RM 380C. SW library & newsletter. For topic check PDSE BBS in Sunnyvale (408)735-7390, 300/1200, 8-N-1, 24 hrs.

UNIFY

Unify Users Group. Information exchange, presentations and problem-solving related to Unify products. Email distribution is available for those connected to USENTE or UUCP mail at UUg-dist@mrspoc. Call: Steven List, 961-6112.

UNIX

SVNet. UNIX User Group. UNIX Meetings: 3rd Tuesdays, 10500 DeAnza, Cupertino. Talks on UNIX topics, books, and reviews. Call: Ralph Barker, (408)248-8649.

VENTURA PUBLISHER

San Mateo Ventura Users' Group. Meetings: 2nd Mondays, 7:00-9:30 pm, 619 Bradford, Redwood City. Workshops, lectures, demonstrations of new techniques, shortcuts. Call: Eleanor Church, (415)726-3181.

Ventura Desktop Publishing Users Group. Meeting: 1st Tuesday, 7-9:00 pm, 1650 S. Amphlett Blvd., San Mateo. Newly formed group. Call Eleanor Church at (415)726-3181, or Pam Sheble at (415)574-2003 for information.

Ventura Publisher User Group (VPUG, Inc.). Meetings: 3rd Wednesdays, 6–9 pm, Hewlett-Packard, Oak Room, Wolfe Road at Pruneridge, Cupertino. Workshop, Q&A, HW/SW demonstrations. Monthly 70-page mag, BBS, discounts, etc. $36/yr. Call: (408)227-5030.

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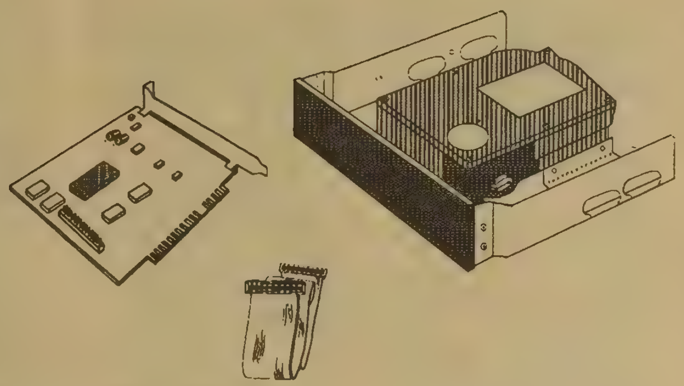

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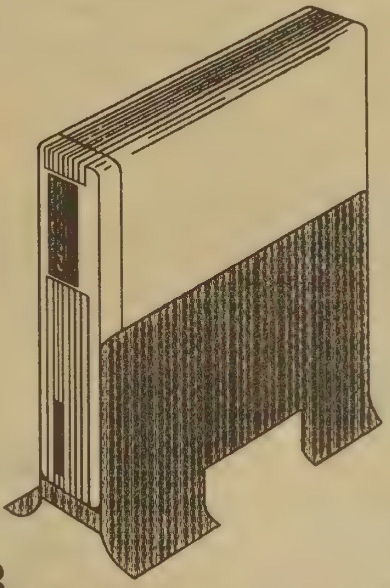

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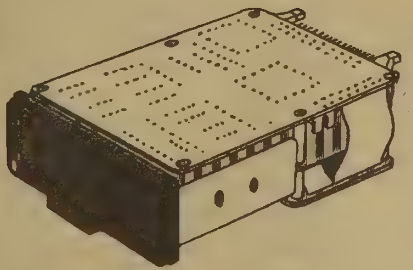

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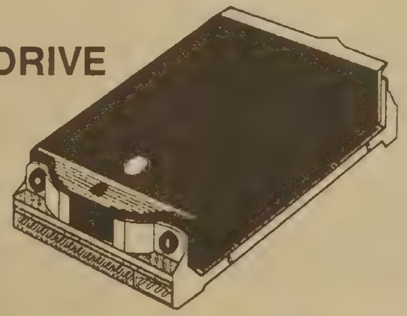

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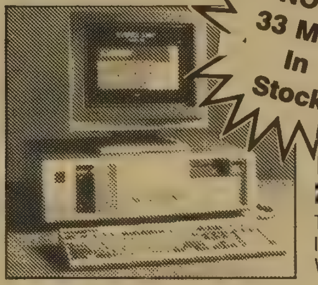

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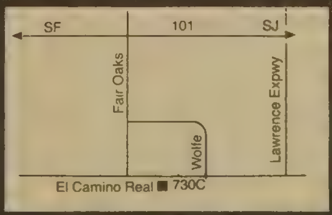

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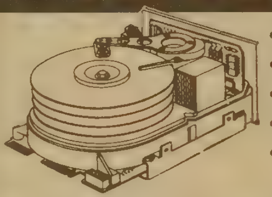

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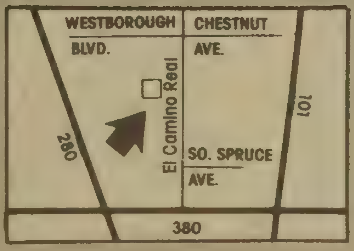

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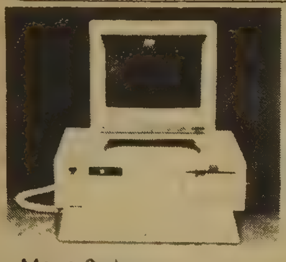

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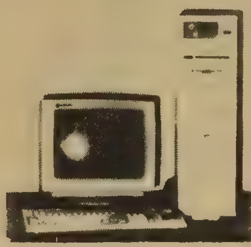

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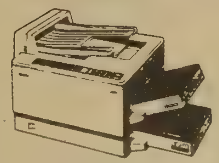

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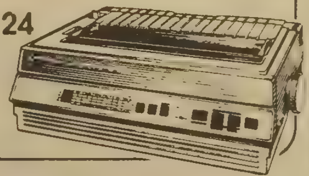

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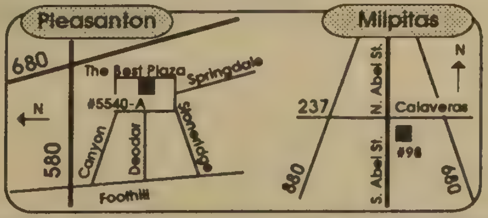

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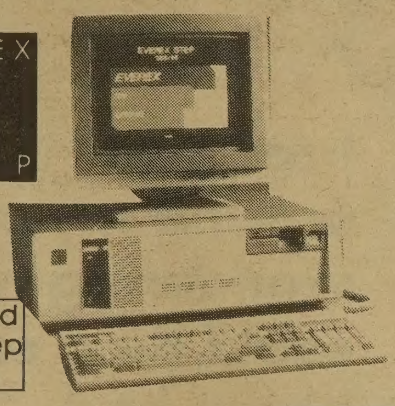

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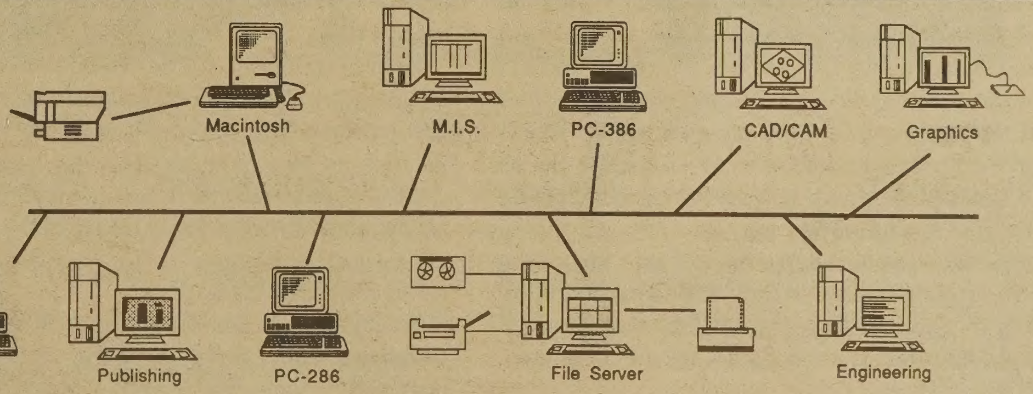

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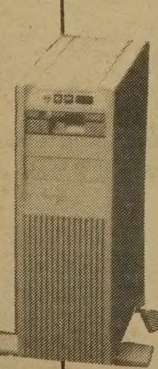

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DVORAK'S LAST COLUMN • BY JOHN C. DVORAK

Temple Of Doomed Mice & Trakballs

Or, How You Can Be A Screenwriter In Your Spare Time

It was suggested that I change my style. I should write these columns with the idea in mind that I should option them as screenplays.

"Screenplays?" I was flabbergasted, but it was Jim Fenton who told me this. He makes over $100,000 a year optioning his HERE'S JIM! gardening column.

"It's easy. You just need dramatic moments." He was dead serious as he showed me a couple of his more compelling articles. "Here! See!" He said as he held up a copy of an article entitled "Rhododendrons—Threat or Menace?!"

He says he can get anywhere from $10,000 to $30,000 per option. Obviously not all his columns get the royal treatment. "You only need to sell a few a year to make it worthwhile," he said.

The next day I roamed around my office wondering how I could do a column about bad computer ideas and turn it into a treatment for a screenplay and then option it to some sucker who just wanted the title.

I could tell the story of Larry "the Mole" Lipshitz, inventor of the DOS-Shell Co-Ordinator, a program that loaded one DOS shell in after another and coordinated their activity with a DOS Shell shell. It was determined that if you loaded every DOS shell into the DOS Shell Co-Ordinator you wouldn't have any room left to run any programs. Lipshitz claims that the OS/2 upgrade will solve this dilemma by using protected mode.

Lipshitz was best known for writing code for the Lawrence Livermore Lab Cray-2. He lost credibility when he promoted the notion that WordStar 3.3 should be used as a benchmark for all computers, including a Cray.

"You should see the Cray-2 run WordStar. It's really fast," he told me in a rare interview. Lipshitz apparently wrote an 8088 emulator in vectorizing Fortran and then managed to run a virtualized DOS and WordStar run in batch mode as a Fortran program. He actually developed this concept at the University of California where he invented a WordStar whose source code was on punched cards. In fact the editor only ran in batch mode. So all the documents had to be keypunched and edited in batch mode too. The fact that no real-time editing could be done was irrelevant to Lipshitz. "This is a benchmark!" he'd scream at detractors.

After most of these ideas failed, he went to work at Ashton-Tate and, I'm told, was fired for trying to code dBASE V in Fortran.

Lipshitz wasn't the weirdest guy I ran into recently. Let's not forget Larry Gopherhole, a professor of English Lit at Cal Berkeley. Struck by lightning in 1985, he became a computer fanatic and someone who dedicated his life to one pursuit: making the computer accessible and beloved by the post mid-life-crisis male.

He went from PC manufacturer to PC manufacturer promoting the idea of a laptop computer for middle-aged men. It was said to be the only portable with a bald spot.

Gopherhole was eventually captured and returned to lock-up therapy where he stayed for a couple of years. He now lives in Sausalito where he runs a semi-profitable floppy disk refurbishing business and diskette buffing service. Most observers figure that his nearby massage parlor makes all the real money.

Meanwhile, I can't forget the authors of the weird and unusual books. There's Brad B. Bradman's *Error Codes Almanac—1990.* It's sold 40 copies over the past two years, most of them purchased by Brad's Mom, Dorothy, who uses them to drop from the second story window on Sunday mornings when the Jehovah's Witnesses come around. Brad's claim to fame is a unique ability to belch the Greek alphabet at parties.

Then there's Art C. Craftsy and his book, *Upgrading a Kaypro.* Craftsy felt he was on his way to his first million when he opened the closet door of his bedroom to be conked on the head and killed by a stray Kaypro portable. The publisher took the book off the market immediately after Craftsy's death. It mysteriously reappeared under a new author's name a few months later.

Then there was Les B. Trendy and his book, *Your Computer and Global Warming,* a book which managed to blame the computer revolution for the melting of the ice caps and the eventual flooding of New York City because of the greenhouse effect. Trendy was last seen wearing a duck costume and strapped to the hood of a 1945 Ford Woody while being driven through the White Mountains of New England by a group of Vermont free-love nudists who pride themselves on never wearing clothes while driving and never having to pay a toll at the Sumner Tunnel in Boston.

I can't really finish this column without mentioning John Handcreme and his idea for a line of commemorative mouse balls. His business plan targeted the Franklin Mint as the likely marketeer of such a concept, and he was about to sign a venture capital agreement with Kleiner Perkins to design prototype balls when, while dining at a famous (and notorious) San Francisco gourmet restaurant, he choked on a chicken bone and died when a professional wrestler gave him a Heimlich maneuver and crushed his chest. The ownership of the mouse ball business plan and Handcreme's ideas are now being litigated in Federal Court.

These are all things that great screenplays are made from, don't you think? We won't even begin to discuss the keyboard-on-a-stick or the pig latin voice recognition software. Hollywood isn't ready for that yet. ■

I roamed around my office wondering how I could do a column about bad computer ideas and turn it into a treatment for a screenplay and then option it to some sucker who just wanted the title.

Copyright © 1990 by John C. Dvorak. All rights reserved. John C. Dvorak graduated from the University of California. He is a contributing editor of PC Magazine *and* MacUser, *considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

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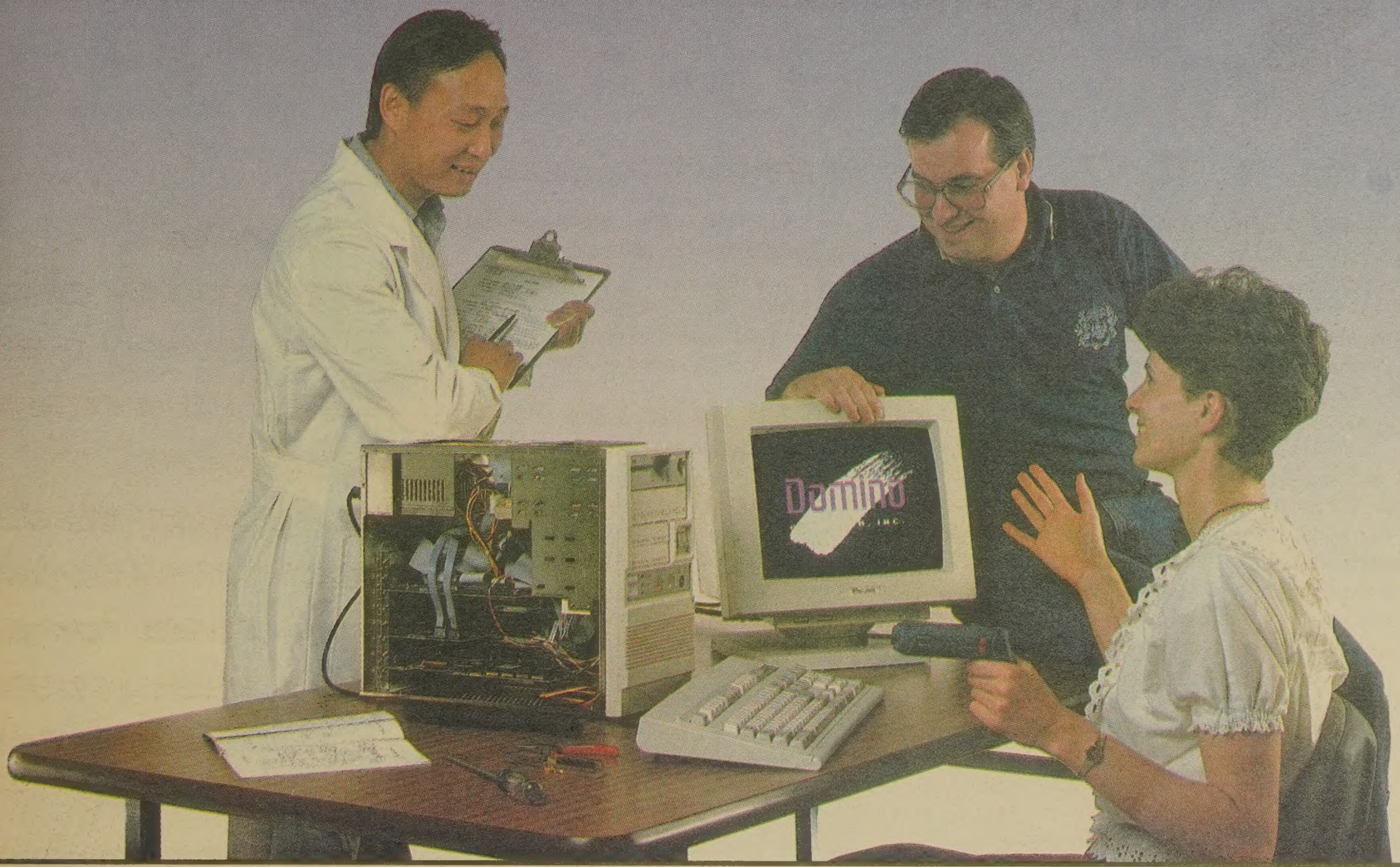

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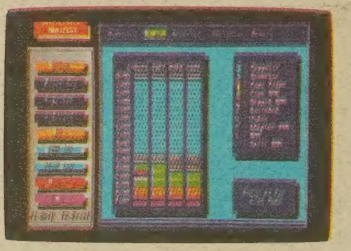

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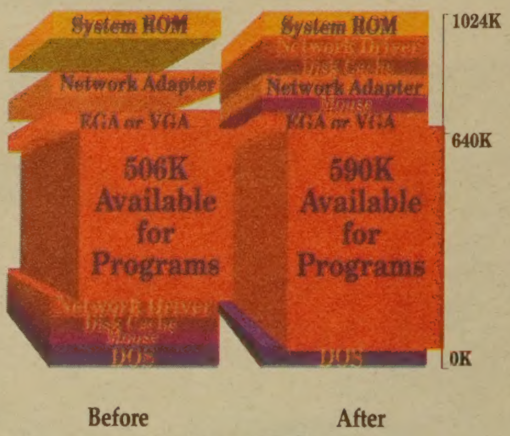

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